TECHNICAL REPORT

GE SECURITY EMEA BVBA

TYPE APPROVAL TESTING OF IAS NX-SERIES ACCORDING TO CLC/TS 50131-3 REQUIREMENTS

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DET NORSKE VERITAS

TECHNICAL REPORT

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Client: GE Security EMEA BVBA	Client ref.: Henk Debode

DET NORSKE VERITAS
CERTIFICATION AS

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Summary:
Three Intrusion Control Panels, type NX-8-EUR, NX-6-EUR and NX4-EUR and peripheral equipment made by GE Security, have been EMC, environmentally and functionally tested in accordance with the following test specification:

- CLC/TS 50131-3, July 2003, Alarm systems – Intrusion systems, Part 3: Control and indicating equipment. Security grade 2.

The purpose of the testing was to qualify the alarm system for type approval by the approval societies. See paragraph 1, Scope of Work for specification.

Test results:
See paragraph 11, summary of test results

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Work verified by: Yngve Arvesen	
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Reference to part of this report which may lead to misinterpretation is not permissible.

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1 SCOPE OF WORK

Three Intrusion Control Panels, type NX-8-EUR, NX-6-EUR and NX4-EUR and peripheral equipment made by GE Security, have been EMC, environmentally and functionally tested in accordance with the following test specification:

- CLC/TS 50131-3, July 2003, Alarm systems – Intrusion systems, Part 3: Control and indicating equipment. Security grade 2.

Referenced standards:

- EN 50131-1, "Alarm systems - Intrusion systems. Part 1: General requirements.
- EN 50130-4, "Alarm systems, Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems", December 1995 (AM1 April 1998).
- EN 50130-5, "Alarm systems, Part 5: Environmental test methods". December 1998. Environmental class II
- EN 50131-6, "Alarm systems - Intrusion systems. Part 6: Power supplies. September 1997.
- EN 50102 Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code). March 1995 (AM1 October 1998)

The results presented in this report apply to the single item tested, and is not necessarily applicable for the whole production series.

The purpose of the testing was to qualify the system for type approval by the approval societies.

2 TEST LABORATORY

The tests were carried out in the Environmental Test Laboratory at Det Norske Veritas, Høvik, Norway.

Ambient conditions in the laboratory, CLC/TS 50131-3, section 12.1.1:

Parameter	Required (IEC 60068-1)	Actual
Temperature [°C]	15 - 35	21 - 24
Humidity [% RH]	25 - 75 (30-60 for ESD)	25 – 37 (30)
Barometric pressure [mbar]	860 - 1060	989 - 1050

The AC supply at the laboratory is generally configured as an IT network. However, the AC supply mains in the EMC test room (used for radiated emission measurements and immunity to an electrical field) is configured as a TNS network.

For details about the test facilities and instruments used, see Chapter 13.

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Laboratory accreditation:

Norwegian Accreditation, No. TEST 034
P6 – Electromagnetic Compatibility
P17 – Environmental Testing
P20 – Safety Testing
According to NS-EN ISO/IEC 17025. Valid through 22.04.2008.

3 TEST PERIOD

The Intrusion Control Panel was received for test 26 January 2005. The tests were carried out between 26 January 2005 and 25 May2005.

4 ATTENDING REPRESENTATIVES

The following client representative was present during the functional testing:

- Mr. Henk Debode, GE Security, EMEA BVBA.

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5 EQUIPMENT UNDER TEST

5.1 Equipment submitted for tests

- CLC/TS 50131-3, section 12.1.2 and 12.1.3

The EUT consisted of the following units:

Reference to part of this report which may lead to misinterpretation is not permissible.

NX-8-EUR:

Unit no.	Description	Model	Type	Ser. No.	Other info
Central unit consisting of:					
1	Main PCB (zone 1-8)	GE Security	NX-8-EUR NX8V2	38-0051 REV5	3804, NX-8-BO C90501W1.
	Zone expander (zones 9-24)	GE Security	NX-216E	38-0002 REV6	2804 Software: 12/20/01 (checksum 0DA9)
	Zone expander (zone 25-40)	GE Security	NX-216E	38-0002 REV6	2804 Software: 12/20/01 (checksum 0DA9)
	Zone expander (zone 41-48)	GE Security	NX-216E	38-0002 REV6	2804 Software: 12/20/01 (checksum 0DA9)
	Battery (1)	Aritech	BS 131N	021127H F	(12V, 18Ah)
	Mains transformer	Wijdeven	AFO.040.141.416	-	49.01 PRI: 230V 1Ph 50/60Hz Fuse: 250mA T SEC : 16.3V, 40VA
Other separate units:					
2	Keypad (LCD Display)	GE Security	NX-148E	38-001	Rev 7, 1804 SW: NX-148, V3.48 (checksum 715B)

For all control panels, the processor is identical (see chapter 14). Therefore, only the NX-8 V.2 were configured according to CLC/TS 50131-3, section 12.1.3. The maximum number of zones (48) were simulated by 8 zones from the panel it self and the remaining 40 zones by 3 expansion modules i.e. in total 48 zones. All zones were configured to be of a double balanced type, DEOL (**D**ouble **E**nd **O**f **L**ine. The system wiring was carried out by GE Security.

NX-6 EUR:

Reference to part of this report which may lead to misinterpretation is not permissible.

Unit no.	Description	Model	Type	Ser. No.	Other info
Central unit consisting of:					
1	Main PCB	GE Security	NX-6-EUR NX-6V2	38-0058 REV4	3704, NX-6-BO-EUR, 90501W1 SW: v1.07 (checksum 4199)
	Output expander (printer, OC etc)	GE Security	NX-508E NX-508	38-0008 REV2	0803, SW: NX 508E/507E/5ABD, V2.00, 12/21/04
	Zone expander (Relay)	GE Security	NX-507E NX-507	380019. REV1	0804, SW: NX 508E/507E/5ABD, V2.00, 12/21/04
	Battery (1)	Aritech	BS 127	020926H A	(12V, 7.2Ah)
	Mains transformer	Wijdeven	AFO.040.141.416	-	49.01 PRI: 230V 1Ph 50/60Hz Fuse: 250mA T SEC : 16.3V, 40VA
Other separate units:					
2	Keypad (LCD Display)	GE Security	NX-148E	38-001	Rev 7, 1804 SW: NX-148, V3.48 (checksum 715B)

All zones were configured to be of a double balanced type, DEOL (**D**ouble **E**nd **O**f **L**ine. The system wiring was carried out by GE Security.

NX-4 EUR:

Reference to part of this report which may lead to misinterpretation is not permissible.

Unit no.	Description	Model	Type	Ser. No.	Other info
Central unit consisting of:					
1	Main PCB	GE Security	NX-4-EUR NX-4V2	38-0057 REV4	3704, NX-4 BO, 90410W44 SW: v1.07 (checksum 6D83)
	Battery (1)	Aritech	BS 127	020926H A	(12V, 7.2Ah)
	Mains transformer	Wijdeven	AFO.040.141.416	-	49.01 PRI: 230V 1Ph 50/60Hz Fuse: 250mA T SEC : 16.3V, 40VA
Other separate units:					
2	Keypad (LCD Display)	GE Security	NX-148E	38-001	Rev 7, 1804 SW: NX-148, V3.48 (checksum 715B)

All zones were configured to be of a double balanced type, DEOL (**D**ouble **E**nd **O**f **L**ine. The system wiring was carried out by GE Security.

Reference to part of this report which may lead to misinterpretation is not permissible.

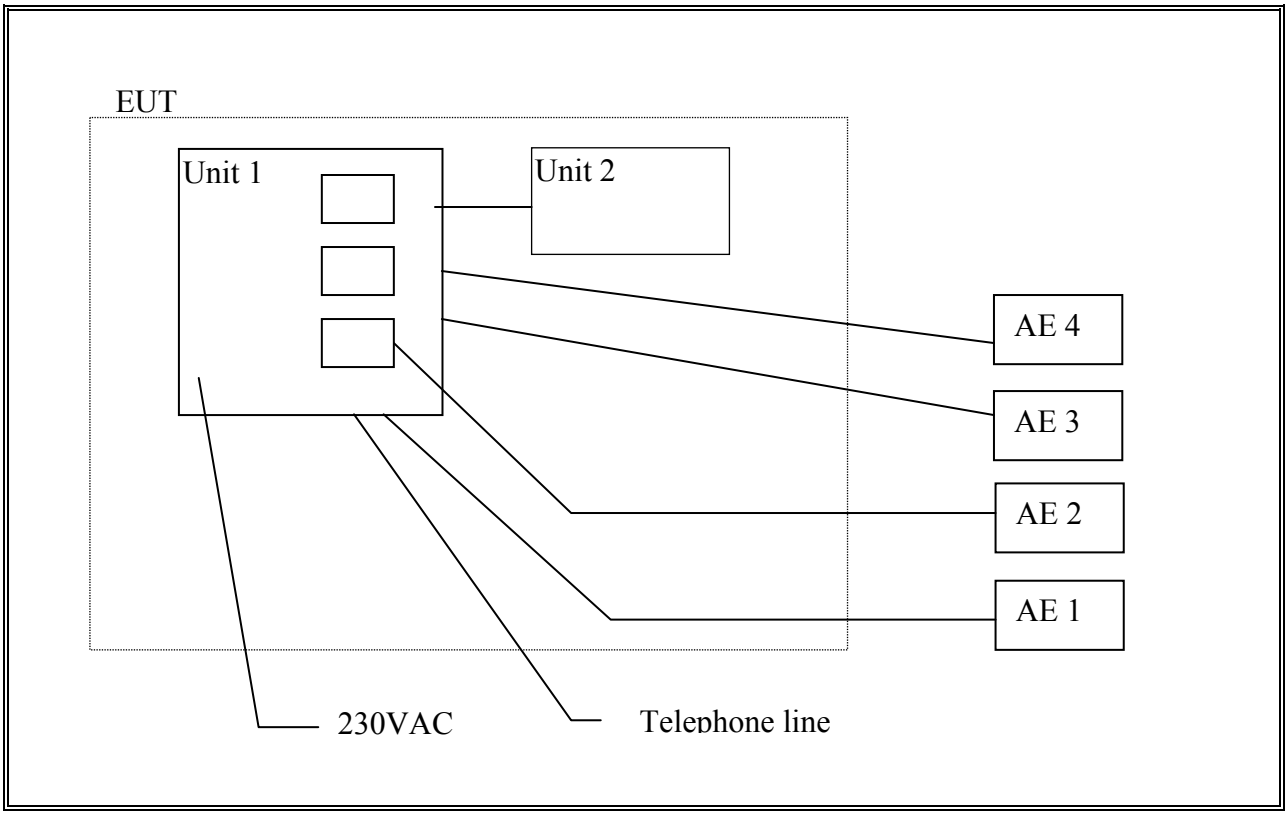
Test configuration, NX-8-EUR

- CLC/TS 50131-3, section 12.1.2 and 12.1.3.

Auxiliary equipment (AE):

AE no.	Description	Make	Type	Ser. no.	SW ver. / Other info
1	Detector simulator	GE Security	Double bal.	--	3.3kΩ / 3.3kΩ
2	Detector simulator	GE Security	Double bal.	--	3.3kΩ / 3.3kΩ
4	Bell indicator lamp	GE Security	Led w/res.	--	--
5	AUXOUTS (2-3)	GE Security	Led w/res.	--	--

Block diagram, NX-8-EUR:



The block diagram describes the set-up for normal operation and monitoring of the EUT.

Reference to part of this report which may lead to misinterpretation is not permissible.

NX-8-EUR:
The following cables interconnected the different units of the EUT, and the EUT and the auxiliary equipment:

Cable No.	Description	Type	No. of leads	Shielded	Length (m)
1	Power cable (230 VAC)	0.75mm²	3 (L1, L2 and PE)	No	1
2	Control Panel – Keypad (LCD)	0.22mm²	4 (3 in use)	No	2
3	Control Panel – detector simulator (AE1)	0.22mm²	4 (2 in use)	No	2
4	Zone expander – detector simulator (AE2)	0.22mm²	4 (2 in use)	No	2
5	Control Panel – bell indicator lamp (AE3)	0.22mm²	4 (2 in use)	No	2
6	Control Panel – AUXOUTS lamp (AE4)	0.22mm²	4 (2 in use)	No	2
7	Control Panel – telephone jack	0.22mm²	4	No	2

Coupling networks and cabling modifications were applied as required to perform the tests according to the relevant standards.

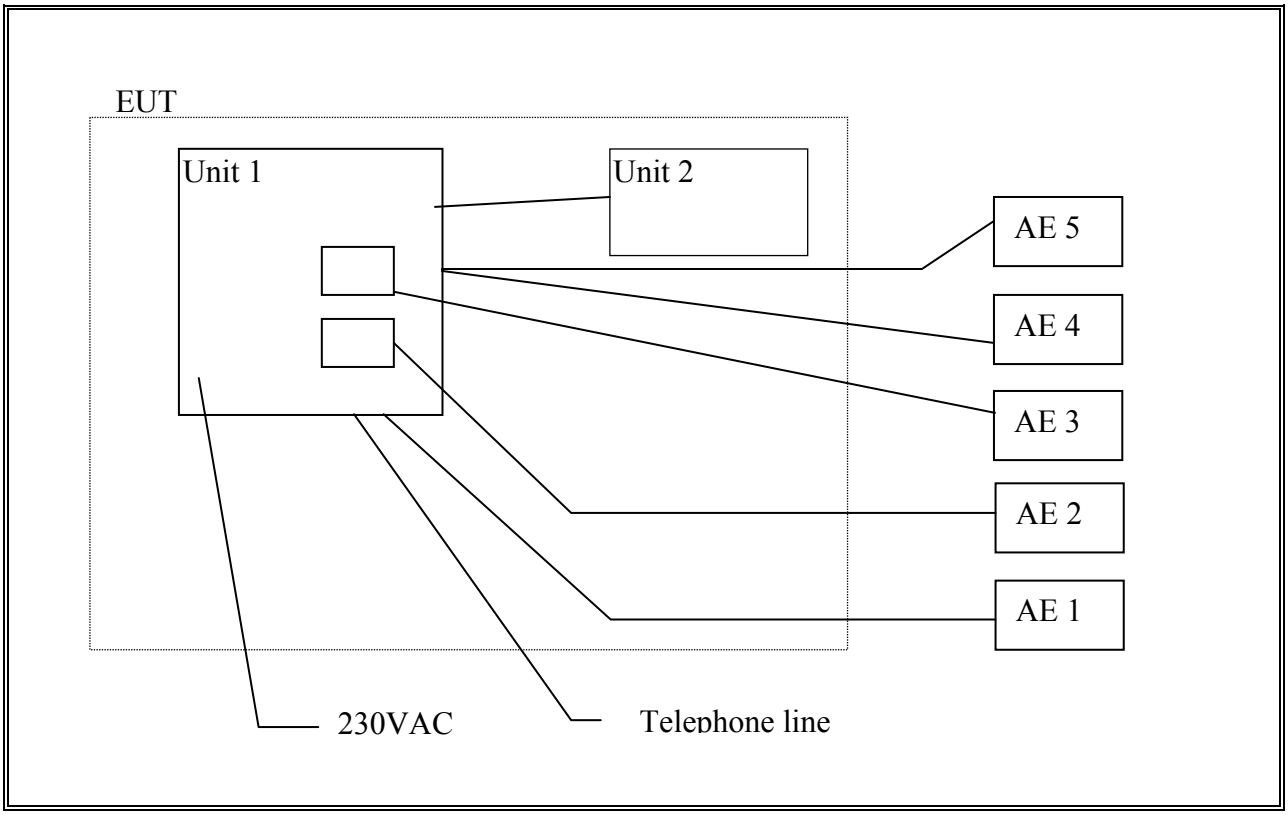
Reference to part of this report which may lead to misinterpretation is not permissible.

Test configuration, NX-6-EUR

Auxiliary equipment (AE):

AE no.	Description	Make	Type	Ser. no.	SW ver. / Other info
1	Detector simulator (NX-6)	GE Security	Double bal.	--	3.3kΩ / 3.3kΩ
2	Bell indicator lamp (NX-508)	GE Security	Led w/res.	--	--
3	Bell indicator lamp (NX-507)	GE Security	Led w/res.	--	--
4	Bell indicator lamp (NX-6)	GE Security	Led w/res.	--	--
5	AUXOUTS (2-3) (NX-6)	GE Security	Led w/res.	--	--

Block diagram, NX-6-EUR:



The block diagram describes the set-up for normal operation and monitoring of the EUT.

Reference to part of this report which may lead to misinterpretation is not permissible.

NX-6-EUR:
The following cables interconnected the different units of the EUT, and the EUT and the auxiliary equipment:

Cable No.	Description	Type	No. of leads	Shielded	Length (m)
4	Power cable (230 VAC)	0.75mm²	3 (L1, L2 and PE)	No	1
5	Control Panel – Keypad (LCD)	0.22mm²	4 (3 in use)	No	2
6	Control Panel – detector simulator (AE1)	0.22mm²	4 (2 in use)	No	2
4	Output expander (NX-507) – bell indicator lamp (AE2)	0.22mm²	4 (2 in use)	No	2
5	Output expander (NX-508) – bell indicator lamp (AE3)	0.22mm²	4 (2 in use)	No	2
6	Control Panel – bell indicator lamp (AE4)	0.22mm²	4 (2 in use)	No	2
7	Control Panel – AUXOUTS lamp (AE5)	0.22mm²	4 (2 in use)	No	2
8	Control Panel – telephone jack	0.22mm²	4	No	2

Coupling networks and cabling modifications were applied as required to perform the tests according to the relevant standards.

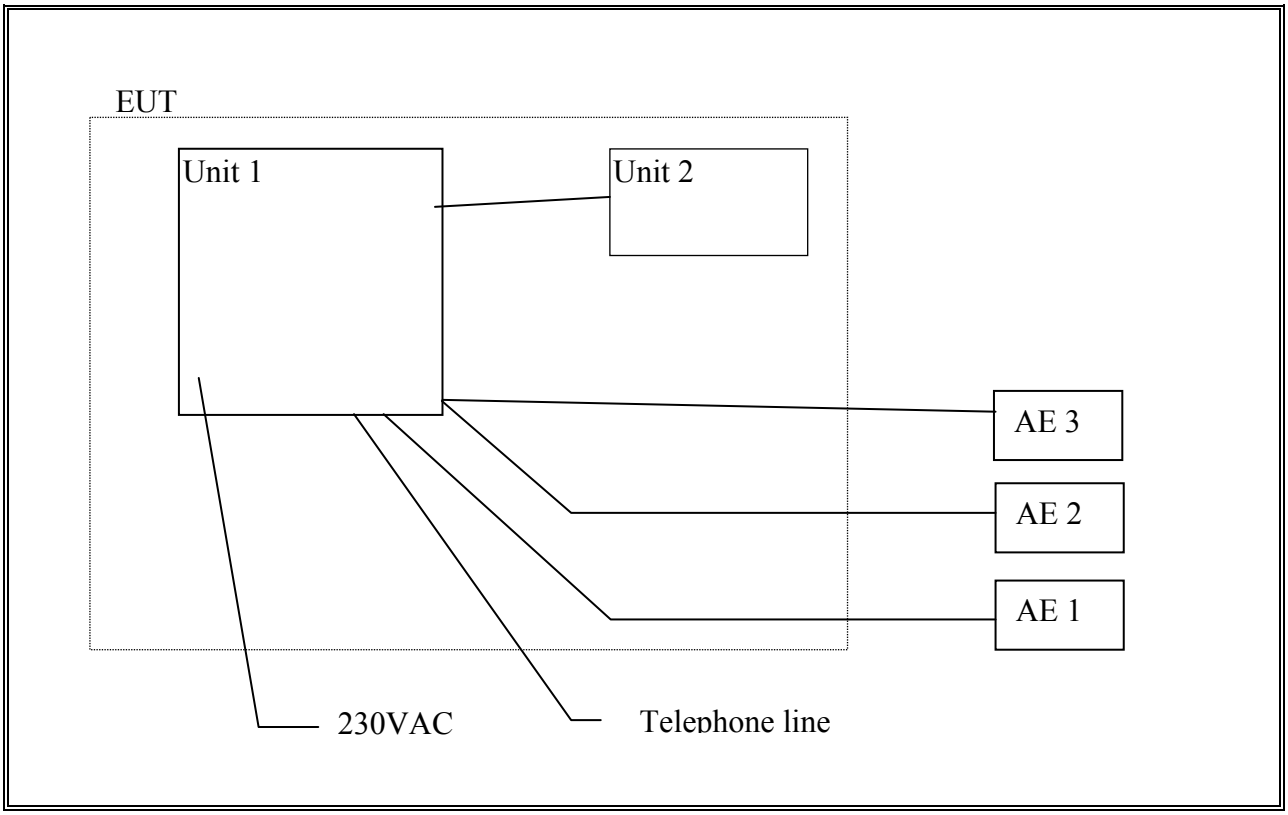
Reference to part of this report which may lead to misinterpretation is not permissible.

Test configuration, NX-4-EUR

Auxiliary equipment (AE):

AE no.	Description	Make	Type	Ser. no.	SW ver. / Other info
1	Detector simulator (NX-4)	GE Security	Double bal.	--	3.3kΩ / 3.3kΩ
2	AUX1 (NX-4)	GE Security	Led w/res.	--	--
3	Siren output (NX-4)	GE Security	Led w/res.	--	--

Block diagram, NX-4-EUR:



The block diagram describes the set-up for normal operation and monitoring of the EUT.

Reference to part of this report which may lead to misinterpretation is not permissible.

NX-4-EUR:
The following cables interconnected the different units of the EUT, and the EUT and the auxiliary equipment:

Cable No.	Description	Type	No. of leads	Shielded	Length (m)
7	Power cable (230 VAC)	0.75mm²	3 (L1, L2, PE)	No	1
8	Control Panel – Keypad (LCD)	0.22mm²	4 (3 in use)	No	2
9	Control Panel – detector simulator (AE1)	0.22mm²	4 (2 in use)	No	2
4	Control Panel – Siren indicator lamp (AE2)	0.22mm²	4 (2 in use)	No	2
5	Control Panel – AUX1 lamp (AE3)	0.22mm²	4 (2 in use)	No	2
6	Control Panel – telephone jack	0.22mm²	4	No	2

Coupling networks and cabling modifications were applied as required to perform the tests according to the relevant standards.

5.2 Inputs/outputs tested

All I/O connections as stated in 5.1 were identified as relevant to the environmental and EMC testing.

Reference to part of this report which may lead to misinterpretation is not permissible.

5.3 Modifications

In order to pass some functional requirements, the EUT was modified as described below.

Mod. No.	Item modified	Modified during test	Modification
1	NX-8	FT	SW changed from D423 to v1.06 (checksum 7984)
2	NX-6	FT	SW changed from 9A86 to v1.07 (checksum 4199)
3	NX-4	FT	SW changed from 984B to v1.07 (checksum 6D83)
4	manuals	FT	Installation manuals changed from: • NX-8-EUR INS E GE 231204 • NX-6-EUR INS E GE 231204 • NX-4-EUR INS E GE 080904 Installation manuals changed to: • NX-8-EUR INS E GE 270405 • NX-6-EUR INS E GE 280405 • NX-4-EUR INS E GE 280405 User manual changed from: • NX-148E USER GE 041004 User manual changed to: • NX-148E USER GE 260505

The functional tests were carried out with the modified software.

Reference to part of this report which may lead to misinterpretation is not permissible.

6 EVALUATION OF PERFORMANCE DURING THE TESTS

6.1 Performance monitoring

EMC and other operational tests:

- Powered by 230 VAC
- Battery power source active and with the APS at a level of minimum 80%. CLC/TS 50131-3, section 12.1.4
- All zones in normal mode (DEOL)
- All boards monitored during each individual test

6.2 Functional testing

EMC and other operational tests:

- The reduced functional test (FT) were carried out according to CLC/TS 50131-3, section 12.3/table 20 and EN 50131-6, section 8.1.6 both before and after the individual tests.
- When required, the reduced functional test was also carried out at a certain time during the test. When applicable, this is stated in the chapters describing each test.

Endurance tests:

- The reduced functional test was carried out according to CLC/TS 50131-3, section 12.3/table 20 and EN 50131-6, section 8.1.6 both before and after the individual tests.

6.3 Acceptance criteria

- If not stated, pass/fail criteria for each individual test is specified in the relevant standard(s)

Reference to part of this report which may lead to misinterpretation is not permissible.

7 FUNCTIONAL TESTING

- CLC/TS 50131-3, section 12.4 – 12.6.7

Possible test case verdicts: **P** = Pass, **F** = Fail, **NA** = Not applicable. Placed in the column "Verdict".

Clause	Requirement - test	Result	Verdict
4	Equipment attributes		
4.1	General	Control and indicating equipment includes attributes for the detection of input status, processing the information, notification and indication as appropriate.	**P**
4.2	Functionality	Control and indicating equipment shall include the following functions:	
4.2.1	Inputs:	Alarm zones: DEOL/SEOL/NC/NO-Combined Nettwork module (NX-507E) System bus	**P**
4.2.2	Operation:	Functions are included.	**P**
4.2.3	Processing:	Functions are included.	**P**
4.2.4	Outputs:	Functions are included.	**P**
4.2.5	Tamper security:	Functions are included.	**P**
4.2.6	Monitoring:	Functions are included.	**P**
5	**CIE structure**	The EUT consist of several components specified in chapter 5.	**P**
6	**Security grade**	The system is tested according to security grade II	**P**
7	**Environmental requirements**		
7.1-7.5	General	The system is tested according to environmental class II	**P**
7.6	Special conditions	NA	**NA**
7.7	Environmental tests	Levels in clauses 12 and 13 are used	
8	**Functional requirements**		

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
8.1	Inputs	Security grade II. Means are provided to fulfil the requirement.	**P**
8.1.1	Intruder detection	Intruder signals verified by DEOL zone 1-48.	**P**
8.1.2	Hold-up device	Hold-up signals verified by DEOL zone 3. (Zone type 10)	**P**
8.1.3	Tamper	• Tamper signals verified by DEOL zone 1-40 (NX-8). In addition, zones can be configured as 24h-tamper-zones.	**P**
8.1.4	Fault	Ex: Battery, mains and interconnections are monitored.	**P**
8.1.5	Monitoring (input) Ref. 8.3.3, 8.8 and table 9.	Interconnections are supervised. A fault will be processed as a fault or tamper (Programmable)	**P**
8.1.6	User input	The control panel (s) was connected to one keypad(s) during the functional testing. Max 24 for NX-8 Max 16 for NX-6 Max 8 for NX-4	**P**
8.1.7	Other		**NA**
8.2	Operation	Means are provided to fulfil the requirement. The following codes are used during testing: • User code • Master code • Installer code One or more keypad(s) were used for verification	**P**
8.2.1	Access levels	3 levels are provided: • Any person • User	**P**

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Clause	Requirement - test	Result	Verdict
		• Service personal Indications = OK Set = OK Unset = OK Restore IAS = OK Verify IAS functions = OK Interrogate event log = OK Inhibit/isolate/override = OK Add/change/authorisation codes = OK Add/change site specific data = OK Change the program = OK Access at level 3 requires authorisation by a level 2 person = OK (programmable). Authorisation remains until installer exits the installer mode manually or after 15 minutes in installation mode without any key presses. The installer have to enter the installer code within 60 seconds after access have been given by the user. Means are provided to prevent reading of authorisation codes.	

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Clause	Requirement - test	Result	Verdict
8.2.2	Authorization • Disable period = 90 seconds • Tamper shall not be activated when less than 3 incorrect attempts are detected.	4 or 6 digit codes. Security grade II. NX-8: 66/99 users. NX-6: 40/40 users. NX-4: 8/8 users. Disable period: 60sec < 90sec= not OK, fulfilled by tamper signal. See below. Max number of attempts: 7 or 5 depending on user code (4 or 6 digit) 30 key presses. < 3 attempts = no alarm = OK Disable user device(s) = OK/NA (60 sec) Max number of attempts = OK Max number of further attempts = OK Record in event log = OK Tamper signal or message = OK Max number before tamper = OK	**P**
8.2.3	Setting procedures	• Setting procedure could be initiated by a level 2 user • Intrusion alarm condition generated a local alarm indication and the bell output. • Pre-determined setting and indication = OK (locally in keypad and programmable separate outputs)	**P**
8.2.3.1	Prevention of setting	Security grade II. One or more of the conditions: Detector in active condition = OK Detector range reduction = Optional Tamper condition = OK Interconnection fault = OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
		APS fault = OK EPS fault = NA, See above = X ATE fault = OK ATE and WD faults = OK Other IAS faults = OK	
8.2.3.2	Overriding of prevention of setting • Level 2: for one set period • Level 3: for more than one set period	Security grade II. Means to override prevention of setting condition: not implemented = OK. Not required = OK	**P**
8.2.3.3	Logging the overriding of prevention of setting conditions	Ref 8.10 → EN 50 131-1 Overriding not possible	**P**
8.2.3.4	Exit route facility Provision of an exit route is optional	Means to select the defined alarm points to be included in the exit route facility = OK Means to indicate that the exit time has commenced according to table 11 and 12 = OK	**P**
8.2.3.5	Set state	Means are provided to indicate that the IAS is in the set mode. PGM outputs 1-4.	**P**
8.2.3.6	Failure to set	Detectors in active condition will not generate an alarm at the end of the exit time. They will automatically be bypassed (inhibited) until their normal condition is re-established. The remaining of the system components will be subjected to signal processing. The indication of failure to set will be identical to by-passed indication until the open-zone-condition is re-established.	**P**
8.2.4	Unsetting procedure The CIE may provide means to unset at pre-determined times	User(s) with the appropriate level of access can unset the IAS. The CIE provide means to unset at pre-	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
		determined times.	
8.2.4.1	Entry route facility Provision of an entry route is optional	Means to select the defined alarm points to be included in the entry route facility = OK Means to indicate that the entry time has commenced according to table 11 and 12 = OK	**P**
8.2.4.2	Entry time	Maximum 45 seconds entry time = OK Programmable from 10 – 255s. Default = 30 S	**P**
8.2.4.3	Alarm condition occurring during the unsetting procedure	Internal warning device only = OK ATS delay of 30 seconds after notification = OK	**P**
8.2.4.4	Entry period exceeded	Unsetting procedure exceeded = alarm condition	**P**
8.2.4.5	Indication	Successfully completed unsetting procedure is indicated by LCD-message "ready to arm" = OK The indication stays for 30s = OK	**P**
8.2.5	Restore function Table 6	Security Grade II: Intruder: Access level 2 = OK Tamper: Access level 3 = OK Fault: Access level 2 = OK Hold-up: Access level 2 = OK	**P**
8.2.6	Inhibit function • Table 7 and 8 • "n" and "m" shall be provided in the manufacturer's installation guide • Inhibit cancelled • Individual points • Table 12 and 15, indications and event log	Security Grade II: Inhibit: Programmable option for each zone IAS unset > inhibit cancelled = OK Programmable "n"and "m" 0-255 events. Default = 0. Inhibit applied to individual points = OK. Documentation = OK Automatic inhibit, table 7: Programmable at access level 3:	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
		Intruder alarm signal/message = OK Tamper signal/message = OK Fault signal/message = OK User interface = OK Authorisation code = OK Hold-up = not allowed = OK. Manual inhibit, table 8: Intruder alarm signal/message = OK Tamper signal/message = OP Fault signal/message = OP Hold-up = Not allowed = OK. Indications and event memory = OK	
8.2.7	Isolate operation a) Access levels 2 or 3 for grades 1 and 2 = OK b) Access levels 3 for grades 3 and 4 = OK	Security grade II: Isolate not implemented in NX-system	**NA**
8.2.8	Alarm soak test mode • CIE may include a soak test function • Still continue to record in the event log • Manually or automatically removed • Initiated by level 3 access (all grades) • Table 12 • Automatically removed soak test to be stated in manufacturers documentation	IAS does not include a soak test function = OK. Only a walk test function is implemented.	**NA**
8.2.9	Other functions	Not implemented	**NA**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result		Verdict
8.3	Processing EN 50131-1, tables 3, 4 and 5	Security grade II: EN 50131-1 table 3 = TS 50131-3 table 9 = OK EN 50131-1 table 4 = TS 50131-3 table 11 and 12 = OK EN 50131-1 table 5 = TS 50131-3 table 13 = OK		**P**
8.3.1	Processing of intruder, hold-up, tamper and fault signals or messages Table 9	Security grade II: TS 50131-3 table 9 = OK The CIE does not differ an internal WD from an internal WD		**P**
		Unset condition: • Intruder • Hold-up • Tamper • Fault	Set condition: • Intruder • Hold-up • Tamper • Fault	
		Indication = OK	Indication = OK	
		External WD = OK	External WD = OK	
		Internal WD = OK	Internal WD = OK	
		ATS = OK	ATS = OK	
8.3.1.1	Alarm inputs • Alarm messages shall be processed individually • Logical combination • Logically grouped alarm points	Alarm inputs are processed individually		**P**
8.3.1.2	Priorities • Processing described in manufacturers documentation	Manufacturer's documentation = OK Signals present simultaneously are processed = OK The time does not exceed 10 seconds =		**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
	• Signals present simultaneously shall be processed • Maximum 10 seconds, Ref 8.9.5	OK	
8.3.2	Processing of user inputs a) the grade b) the access levels as defined in table 1 c) any subset of table 1	Processing is implemented for: a) OK b) OK c) NA	**P**
8.3.3	Monitoring of processing Table 10 a) Detect fault within 10 seconds b) Grade 4 output c) Grade 3 and 4, restart and generate fault signal d) Resume its previous operating mode	Security grade II: Optional	**NA**
8.4	Indication		
8.4.1	General Table 11 and 12	Security grade II: **NX-148E (LCD):** Table 11: IAS set = OK Alarm = OK Hold-up = OP Zone ID = OK Zone isolated = NA General fault = OK EPS fault = OK APS fault = OK Zone first to alarm (“alarm” blinking) Part set = OK Tamper = OK ATS fault = OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
		Detector masked = OP Table 12: Zone inhibited = OK Entry/exit = OK Zone soaked = NA (8.2.8) Monitoring of processing = OP IAS unset = ready /Armed-LED = off = OK Interconnection fault = OK Power output fault = OP	
8.4.1.1	Alarm, tamper and fault indications • Alarm, tamper and fault indications shall require individual acknowledgement • Indications shall remain until condition restored • Acknowledgement shall not affect any other indications	Individual acknowledgement by a user = OK Indication remain until condition restored = OK Acknowledgement does not affect any other indications = OK.	**P**
8.4.1.2	Other indications	Other conditions not implemented	**NA**
8.4.2	Visual indicators EN 60073	NX-148E: Colours are not used to differentiate the alarms	**P**
8.4.3	Setting/unsetting indication Table 11 and 12 8.2.3.5	Set- and unset indication available for 30 seconds = OK	**P**
8.4.4	Exit/entry route indications Available at access level 1	Exit and entry route indications are implemented in the IAS-keypad(s) by means of a periodic buzzer sound. No other relevant entry/exit route indications.	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
8.4.5	Priority of indications	LCD = indicator The priority of the indications in the LCD is in accordance with the manufacturer's specifications.	**P**
8.5	Notification outputs • Table 13 • 8.3.1 • Maximum 10 min delay of WD output(s) • Means to cancel delay • Means to cancel operation of WD output(s) • WD-time, min 90 seconds- max 15 minutes • EPS delay of maximum 1h • EPS restored – cancel notification	Security grade II: Outputs according to table 9 = OK No outputs including delay option = NA Cancel delay WD = NA No delay facility on outputs. WD = OK Self-powered WD = OK First ATS = OK Second ATS = OK The manual states options according to table 13 = OK. . WD timer: Programmable 0-255min or sec. Default 3 min. See manual. The dialler is integrated on the control panel-board. Dialler alarm delay: Programmable 0-255 sec. Mains delay dialler timer: 0-255 min.	**P**
8.5.1	Other notification	Other notification outputs does not affect requirements of TS 50131-3	**P**
8.6	Tamper security (detection/protection)	Means are provided to prevent access to internal elements by use of different housings.	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
8.6.1	Tamper protection Table 14	Security grade II All components shall be treated as: "inside the supervised premises". See documentation = OK Normal access is mechanically secured and requires the use of an appropriate tool. See 12.4.4	**P**
8.6.2	Tamper detection Table 15 Table 16 Requirement for operating controls or indicators: Grade 1 and 2 = NA Grade 3 and 4 include = M	Security grade II: Opening by normal means for all components = OK Removal from mounting is implemented for all components = NA Keypad = NA Probe 2.5mm. See 12.4.6	**P**
8.6.2.1	Removal from mounting Table 15 Table 17 CIE and ACE	Security grade II: Not relevant	**NA**
8.6.2.2	Penetration of the housing CIE and ACE Table 15	Security grade II: Not relevant	**NA**
8.7	Fault Table 18	Security grade II: Prime power fault = OK Alternative power fault = OK Battery change required = NA Power output fault = NA ATS = OK CIE = OP Interconnections = OK WD = OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
		Other components = OK Detector fault = OK ATE = OK General fault = OK Monitoring of processing = OP EPS = OK	
8.8	Interconnections		
8.8.1	Providing interconnection facility Annex A Manufacturer's documentation	Both direct and data bus connections are available. CIE include physical and logical interface for interconnections. Manufacturer's documentation, page 102= OK	**P**
8.8.2	Monitoring of interconnections Table 19 No verification = Fault signal in all grades Other than a fault : Grade 1 & 2 = fault or tamper Grade 3 & 4 = tamper	Security grade II: Direct: zones = EOL/DEOL = continuously supervised. See manual. "Data bus disconnected" will be detected after approximately 90 seconds. Interconnection fault generates a fault/tamper message (programmable)	**P**
8.8.3	Processing signals from interconnections 8.3.1 Table 9	See 8.3.1 IAS interconnections are included in evaluation of Table 9.	**P**
8.9	Timing EN 50130-4 Annex A Annex C	Table C.1 – Timing table	
8.9.1	Intruder signals or messages • 400mS • Intruder alarm messages shall be processed as	NX-8: IAS zone response time measured to be approximately 50ms < 400ms. NX-6:	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
	intruder alarm conditions	IAS zone response time measured to be approximately 50ms < 400ms. NX-4: IAS zone response time measured to be approximately 50ms < 400ms. NX-216: IAS zone response time measured to be approximately 285ms < 400ms. Intruder alarm messages are being processed as intruder alarm conditions = OK	
8.9.2	Hold-up signals or messages • 400mS • Hold-up messages shall be processed as hold-up alarm conditions	NX-4/6/8: IAS zone response time measured to be approximately 50ms < 400ms. NX-216: IAS zone response time measured to be approximately 285ms < 400ms. Hold-up alarm messages are being processed as hold-up alarm conditions = OK	**P**
8.9.3	Tamper signals or messages • 400mS • Tamper messages shall be processed as tamper alarm conditions	NX-4/6/8: IAS zone response time measured to be approximately 50ms < 400ms. NX-216: IAS zone response time measured to be approximately 285ms < 400ms. Tamper alarm messages are being processed as tamper alarm conditions = OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
8.9.4	Fault signals or messages • 10s • Fault messages shall be processed as fault alarm conditions	Battery present test every 10 seconds Continuously monitoring of system bus. Bus interrupt will be indicated after a maximum period of 90 seconds. Table 19 allows 120 minutes to detect. Fault alarm messages are being processed as fault conditions = OK Telephone line failure can be detected within 0-255 seconds.	**P**
8.9.5	Processing timing Notification shall be initiated within 10 seconds	Intruder, tamper, hold-up and fault signals/messages are processed and notification is initiated within 10 seconds. An indication/notification will typically be 0.5-1 seconds after detection= OK	**P**
8.10	Event recording • EN 50131-1 • 10 seconds of the occurrence of the event • Remote location – ARC - local event log • Mandatory events VS non-mandatory events	Security grade II User ID = OK IAS set = OK IAS unset = OK General fault = Individually faults = OK Intruder alarm = OK Zone first to alarm = Time/date stamp = OK Source of alarm = OK Tamper alarm = OK Prime power fault =OK Battery change required = NA Battery fault = OK Isolation on = NA Isolation off = NA Inhibit on = OK Override = NA	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
		ATS fault = OK (data lost) Changes to time and date = OK Changes to site specific data (start and stop) = OK Failure of periodic communication (expander trouble) = OK Substitution of components = missing modules = OK Substitution of signals or messages = missing modules = OK Availability of means of communication = missing modules / zone tamper etc. =OK Events recorded within 10 seconds =OK Events stored in IAS Note: The IAS has the capacity of storing up to 512 events and all the events required for a grade 4 panel.	
8.10.1	Alteration or deletion 8.10.2	No facilities are implemented in the IAS to alter or delete the contents of the event log	**P**
8.10.2	Capacity • EN 50131-1 • FIFO	Event memory is of type FIFO. 512 events may be stored in the event log. Number of events in the event log investigated = > 500 = OK	**P**
8.10.3	Time and date • 10 minutes accuracy • Date and time stamp	All events have time – date stamp (hh.mm - dd.mm) = OK For clock accuracy, see table 34	**P**
8.10.4	Retention following power failiure 30 days storage	For event memory storage, see table 34.	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
8.10.5	Number of events from single source Maximum 3 events	**Zones:** Programmable function (0-15 events) Default = 0 = Not used. No more than 3 events from the same source will be recorded in the event log within the same set- or unset period. **System:** Battery fault: System fault 3 events = OK Com bus: System fault 3 events = OK	**P**
8.10.6	Permanent record facility Grade 3 and 4 → Printer	Security grade II → Not required. The IAS was connected to a printer by means of NX-507E. The printed record was equal to the internal event log data.	**P**
8.10.7	Event recording at the ARC Unsuccessful transmission indication	The IAS (NX-4/6/8) includes an event log	**NA**
8.11	Power supply • EN 50131-6 • CIE and ACE power consumption	See also EN 50131-6 testing in this test report. Manual: NX-4 = 75-77mA NX-6 = 95-96mA NX-8 = 100-105mA Zone expander (NX-216) = 34mA Output expander (NX-507E) = 10-311mA Output expander (NX-508E) = 10-25mA LCD-keypad (NX-148E) = 20-48mA	**P**
9	**Electrical safety** • EN 60950 • EN 60065	See chapter 14 for EN 60950 certificates	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
10	**Product documentation**		
10.1	Installation and maintenance	Manuals : • NX-8-EUR INS E GE 270405 • NX-6-EUR INS E GE 280405 • NX-4-EUR INS E GE 280405 • NX-507E_508E INS E GE 090504 • NX-216 INS E GE 240105 a) = OK b) = OK c) = OK d) = OK e) = OK f) = OK g) = OK h) = NA i) = OK j) = OK k) = OK l) = OK m) = OK. n) = NA o) = OK p) = OK q) = OK r) = OK	**P**
10.2	Operating instructions	Manual: • NX-148E USER GE 260505 a) = OK b) = OK c) = OK d) = OK e) = NA	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
		f) = OK g) = OK h) = OK	
11	**Marking and labelling**	IAS/ACE: a) = OK b) = OK c) = OK d) = Not OK e) = Not OK f) = Not OK A draft of labelling (IAS) is attached. See picture 22 in chapter 16. The draft is evaluated to fulfil the requirement. The marking is legible, durable and unambiguous. Rubbing the label for 30 seconds with a piece of clothing sprinkled in water following: Rubbing the label for 30 seconds with a piece of clothing sprinkled in isopropyl alcohol (electrolube, IPA, REF: IPA01L). See picture 23 and 24 before and after the test in chapter 16. The final label(s) needs to be of same quality.	**NP**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
12	**Tests**		
12.1	Test conditions	See relevant chapter in this report	**P**
12.1.2	Mounting	The GE representative Mr. Henk Debode wired up the IAS systems.	**P**
12.1.3	CIE test configuration	• The IAS is configured as required in TS 50131-3 specification • At least one type of each component are provided • All zones are connected to either the IAS or ACE • The PPS and APS = OK • Clock and Date are set to local • All alarm points are configured a) See chapter of compliancy = OK b) See chapter 5 = OK c) The event log was partially filled before the testing	**P**
12.1.4	Power supply	Power supply type A Reduced functional test : • EPS at nominal value • ≥80% APS capacity	**P**
12.1.5	Documentation		
12.1.5.1	Product	The manuals are provided with the CIE	**P**
12.1.5.2	Simulator test device	Not used during testing	**NA**
12.2	Functional tests Note 1 Note 2	See section 12.4	
12.3	Reduced functional tests	Table 20	
12.4	Functional tests		
12.4.1	Processing intruder alarm signals or messages a) Object of the test b) Principple	See 8.1.1 See 8.2.5 See 8.3.1 See 8.3.1.2 See 8.9.1 See 8.9.5 See 8.10 See 8.10.5 See 8.9 Table 21	

Reference to part of this report which may lead to misinterpretation is not permissible.

Table 21 – Functional tests RESULT

Step	General measurement and criteria	Measurement result	Pass/fail
1	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13: 8.9.5 8.10	14.29.47 (zone 2) 14.29.50 (zone 2) OK Zone 2 OK OK OK OK <10s = OK Event log = OK	**P**
2	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4	OK OK OK OK OK Table 11 and 12 = OK	**P**
3	Event log Record: 8.2.5	OK Table 6 = OK Restore of alarm indication not recorded.	**P**
4	Time when signal applied: Time when notification occurs: Event log Record: Identity: Unset+restore 8.10.5	14.31.30 (zone 3) 14.31.31 (zone 3) OK Zone 3 OK ≤ 3 events = OK	**P**
5	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13:	14.33.48 (zone 3) Open zone indicated, no alarm = OK None = OK None = OK OK OK OK OK	**P**
6	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13:	14.34.58 (zone 3) None, See item 5 above None None OK OK OK OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

7	Time when signal applied: Time when notification occurs: Event log Record: Identity: 8.3.1.2 8.9.5	14.35.20 (zones 1-2-3-4-41) 14.35.22 (zones 1-2-3-4-41) OK Zones 1-2-3-4-41 Priority = OK <10s = OK	**P**
8	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4:	OK OK OK OK OK Table 11 and 12 = OK	**P**
9	Event log Record: 8.2.5	None Table 6 = OK Restore of alarm indication not recorded.	**P**

Clause	Requirement - test	Result	Verdict
12.4.2	Processing of hold-up signals or messages a) Object of the test b) Principple	See 8.1.2 See 8.2.3.1 See 8.2.5-8.3.1 See 8.4 See 8.5 See 8.9.2 See 8.9.5 See 8.10 See 8.10.5 See 8.9 Table 22	

Reference to part of this report which may lead to misinterpretation is not permissible.

Table 22 – Hold-up tests RESULT

Step	General measurement and criteria	Measurement result	Pass/fail
1	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13: 8.9.5 8.10	15.18.59 (zone 4) 15.19.01 (zone 4) OK Zone 4 OK OK OK OK <10s = OK Event log = OK	**P**
2	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4	OK OK OK OK OK Table 11 and 12 = OK	**P**
3	Event log Record: 8.2.5	OK Table 6 = OK Restore of hold-up alarm indication not recorded.	**P**
4	Time when signal applied: Time when notification occurs: Event log Record: Identity: Unset+restore 8.10.5	15.21.44 (zone 4) 15.21.45 (zone 4) OK Zone 4 OK MAX 3	**P**
5	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13:	15.28.37 (zone 1) 15.28.39 (zone 1) OK Zone 5 OK OK OK OK	**P**
6	(Unset) Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9:	15.31.16 (zone 1) 15.31.17 (zone 1) OK Zone 1 OK OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

	Table 11: Table 12: Table 13: Reset:	OK OK A reset is carried out before step 6.	
7	(Set) Time when signal applied: Time when notification occurs: Event log Record: Identity: 8.3.1.2 8.9.5	 15.32.47 (zones 1-2-3-4-41) 15.32.48 (zones 1-2-3-4-41) OK Zones 1-2-3-4-41 Priority = OK <10s = OK	**P**
8	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4:	OK OK OK OK OK Table 11 and 12 = OK	**P**
9	Event log Record: 8.2.5	NA Table 6 = OK Restore of alarm indication not recorded.	**P**

Clause	Requirement - test	Result	Verdict
12.4.3	Processing of tamper signals or messages a) Object of the test b) Principle	See 8.1.3 See 8.3.1 See 8.4.1 See 8.5 See 8.6 See 8.9.3 See 8.9.5 See 8.10 See 8.8 See 8.9 Table 23	

Reference to part of this report which may lead to misinterpretation is not permissible.

Table 23 – tamper tests RESULT

Step	General measurement and criteria	Measurement result	Pass/fail
1	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13: 8.9.5 8.10	16.24.00 (zone 1-(24h) and 41 (tamper DEOL,) 16.24.02 (zone 1 and 41) OK OK OK OK OK OK <10s = OK Event log = OK	**P**
2	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4	OK OK OK OK OK Table 11 and 12 = OK	**P**
3	Event log Record: 8.2.5	OK Table 6 = OK	**P**
4	Time when signal applied: Time when notification occurs: Event log Record: Identity: Unset+restore 8.10.5	16.34.55 (zone 4) 16.34.56 (zone 4) OK Zone 4 OK OK	**P**
5	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13:	16.37.34 (zone 41) 16.37.35 (zone 41) OK = OK Zone 41 OK OK OK OK	**P**
6	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12:	16.40.16 (zone 1) 16.40.17 (zone 1) OK Zone 1 OK OK OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

	Table 13: Reset:	OK OK	
7	Time when signal applied: Time when notification occurs: Event log Record: Identity: 8.3.1.2 8.9.5	16.47.22 (zones 1-2-3-4-41) 16.47.23 (zones 1-2-3-4-41) OK Zones 1-2-3-4-41 Priority = OK <10s = OK	**P**
8	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4.1.1	OK OK OK OK OK OK	**P**
9	Event log Record: 8.2.5	OK Table 6 = OK	**P**

Clause	Requirement - test	Result	Verdict
12.4.4	Tamper protection 8.6.1 - table 14 Grade 0.5 / 1.0 J a-f	c) Manual = OK d) Tools specified in manual = OK • NX-8 enclosure (NX-003CB) Locked by means of a mechanical key lock. • NX-6 enclosure (NX-003) Locked by means of a mechanical key lock. • NX-4 enclosure (NX-002) Locked by means of up to 4 screws or locked by means of a mechanical key lock. • Keypad NX-148E: Secured by means of a single screw. e) With tools: • Access to all system components was given without any visible damage. Without tools: • NX-003CB/NX-002/NX-148E: Not possible to open.	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

		• NX-003: Not possible to open	
12.4.5	Tamper protection (impact) 8.6.1 - table 14	• NX-8 enclosure (NX-003CB) • NX-6 enclosure (NX-003) • NX-4 enclosure (NX-002) Keypad NX-148E not applicable All enclosures: Visual damage applied to NX-002, NX-003. No damage applied to NX-003CB. A FT according to table 20 was successfully carried out.	**P**
12.4.6	Tamper detection a-f (2.5mm) See: 8.1.3, 8.6.2, 8.9.3, 8.9.5, 8.10	• NX-8 enclosure (NX-003CB) • NX-6 enclosure (NX-003) • NX-4 enclosure (NX-002) Keypad NX-148E not applicable as stated in CLC/TS 50131-3, chapter 8.6.2. All enclosures: A tamper was generated, in both set and unset mode, before it was possible to insert the test rod when the enclosure was opened by normal means.	**P**
12.4.7	Removal from mounting	Not applicable for grade II equipment	**NA**
12.4.8	Penetration	Not applicable for grade II equipment	**NA**
12.4.9	Process monitoring a) Object of the test b) Principle 8.3.3	Not applicable for grade II equipment	**NA**
12.4.10	Processing of fault signals or messages a) Object of the test b) Principle	See 8.1.4 See 8.2.5 See 8.3.1 See 8.4.1 See 8.5 See 8.7 See 8.9.4 8.10	

Reference to part of this report which may lead to misinterpretation is not permissible.

Table 25 – fault test RESULT

Step	General measurement and criteria	Measurement result	Pass/fail
1	Time when signal applied: Time when notification occurs: Event log Record: Identity: Table 9: Table 11: Table 12: Table 13: 8.9.5 8.10	16.52.40 (battery disconnected) 18.52.50 (battery) OK Battery = OK OK OK OK OK <10s = OK Event log = OK	**P**
2	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4	OK OK OK OK OK Table 11 and 12 = OK	**P**
3	Event log Record: 8.2.5	OK	**P**
4	Time when signal applied: Time when notification occurs: Event log Record: Unset+restore 8.10.5	16.56.13 (battery disconnected) 16.56.15 (battery trouble) OK OK Max 3 evnts = Ok for all trouble (battery and data bus) OK for tamper DEOL zone	**P**
5	Time when signal applied: Time when notification occurs: Event log Record: Table 9: Table 11: Table 12: Table 13:	A part of #6 = OK	**P**
6	Time when signal applied: Time when notification occurs: Event log Record: Table 9: Table 11: Table 12: Table 13: Reset:	17.07.01 (Battery disconnected) 17.07.05 (Battery trouble) OK OK OK OK OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

7	Time when signal applied: Time when notification occurs: Event log Record: 8.3.1.2 8.9.5	17.13.37 / 17.17.21(keypad + zone exp.+ battery) 17.13.46 / 17.17.31 (Keypads + zone exp.+battery) OK = OK Priority = OK <10s = OK	**P**
8	Event log Record: Table 9: Table 11: Table 12: Table 13: 8.4.1.1	OK OK OK OK OK OK	**P**
9	Event log Record: 8.2.5	OK = OK Table 6 = OK	**P**
10	Time when signal applied: Time when notification occurs: Event log Record: Identity Table 9: Table 11: Table 12: Table 13:	17.30.09. (hold-up, intruder, tamper, fault) 17.30.10 (hold-up, intruder, tamper, fault) See vent log = OK OK (hold-up, intruder, tamper, fault) OK OK OK OK	**P**

Clause	Requirement - test	Result	Verdict
12.4.11	Processing of optional functions		**NA**
12.5	Access levels		
12.5.1	Access to the functions and controls a) Object of the test b) Principle	See 8.1.6 See 8.2.1 See 8.2.3.2 See 8.2.5 See 8.2.7 See 8.2.8 See 8.3.2 See table 1	**P**

Table 26 = NA

Reference to part of this report which may lead to misinterpretation is not permissible.

Table 27 – Access test RESULT
Event log not recorded/required for this test.

Step	General measurement and criteria	Measurement result	Pass/fail
1	**Level 1** Table 1 Table 5 Table 6 Table 8 8.2.7 8.2.8	 OK OK OK OK OK OK Access not permitted	**P**
2	**Level 2** Table 1 Table 5 Table 6 Table 8 8.2.7 8.2.8	 OK OK OK OK OK OK Access permitted	**P**
3	**Level 3** Table 1 Table 5 Table 6 Table 8 8.2.7 8.2.8	 OK OK OK OK OK OK After authorised by level 2, access at level 3 is permitted	**P**
4	**Level 4**	NA	**NA**

Clause	Requirement - test	Result	Verdict
12.6	Authorisation requirements	See 8.2.2	
12.6.1	Logical keys a) Object of the test b) Principle c) Test conditions d) Test procedure e) Measurement f) Pass/fail criteria	20 different user codes were programmed into the system. The system does not allow different code lengths for different users. No invalid codes. Item a-f = OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

	10.1 (documentation)	In order to comply to CLC/TS 50131-3 the manual states 6 digit codes only.	
12.6.2	Physical keys	Not implemented	**NA**
12.6.3	Incorrect authorization codes Table 3 90 seconds a) Object of the test b) Principple		

NOTE:
Table 3 states options between Table 28 and 29. The table 28 cannot be fulfilled, so table 29a is the only table applicable for this test.

Table 29 – Generation of tamper during incorrect authorization codes
Test results for "set mode"

Step	General measurement and criteria	Measurement result	Pass/fail
		General : Repeat 2 and 3 in unset mode	
1		IAS = set	**P**
2		Still set User input disabled, user tamper recorded in the event log. Notification output for "keypad tamper" activated	**P**
3	After 120 seconds	System unset "keypad tamper" acknowledged Indications restored (notification output)	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Table 29 – Generation of tamper during incorrect authorization codes
Test results for "unset mode"

Step	General measurement and criteria	Measurement result	Pass/fail
2		Still unset User input disabled, user tamper recorded in the event log. Notification output for "keypad tamper" activated	**P**
3	After 120 seconds	System unset "user tamper" acknowledged Indications restored	**P**

Clause	Requirement - test	Result	Verdict
12.6.4	Setting procedures a) Object of the test b) Principle 8.2.3		

Table 30 - Tests of setting procedures - Test results

Step	General measurement and criteria	Measurement result	Pass/fail
1	8.10 Table 4 "Fails to set" indication Fails to set 8.2.3	OK OK OK OK (Zone 2) OK	**P**
2	 Table 4 Indication < 180 seconds	Zone 2 omitted IAS set OK OK	**P**
3	Tamper "Fails to set" indication Fails to set Table 4	Zone 1 OK OK OK	**P**
4	 Table 5	Zone 1 overridden/bypassed IAS set OK IAS restored	**P**
5	Hold-up "Fails to set" indication Fails to set	Zone 3 OK OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

	Table 4	OK	
6	Table 4	Zone 3 not omitted (programmable) not permitted in table 7 and 8. IAS not set OK IAS unset	**P**
Step 7 and 8 repeated for each fault message specified in table 5.			
7	**Interconnection fault:** One keypad disconnected "Fails to set" indication Fails to set Table 4	 Interconnection fault = OK Setting prevented = OK OK	**P**
8	**Interconnection fault:** Table 5	Override not possible. = OK Arming not possible = OK.	**P**
7	**APS fault:** "Fails to set" indication Fails to set Table 4	Battery disconnected OK OK OK	**P**
8	**APS fault:** Table 4	Override not possible. Arming not possible.	**P**
7	**EPS fault:** "Fails to set" indication Fails to set Table 4	Mains disconnected OK OK OK	**P**
8	**EPS fault:** Table 4	Arm with mains trouble allowed providing overriding or not possible to arm during battery trouble. See c-d.	**P**
7	**ATE fault:** "Fails to set" indication Fails to set Table 4	ATS disconnected OK OK OK	**P**
8	**ATE fault:** Table 4	Override not possible. Arming not possible. OK	**P**
7	**WD faults:** "Fails to set" indication Fails to set Table 4	WD disconnected OK OK OK	**P**
8	**WD faults:** Table 4	Override not possible. Arming not possible. OK	**P**
9	Local indication	OK ("zone 2 in active condition" Alarm zone 2	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

Clause	Requirement - test	Result	Verdict
12.6.5	Unsetting procedures a) Object of the test b) Principple 8.2.4		

Table 31 - Tests of unsetting procedures - Test results

Step	General measurement and criteria	Measurement result	Pass/fail
1	Unset Indication < 30 seconds	OK OK	P
2	System set Intruder Unset	OK OK (Zone 2) Unsetting procedure completed	P

Clause	Requirement - test	Result	Verdict
12.6.6	Entry route and exit route facilty a) Object of the test b) Principple 8.2.3.4 8.2.4.1		

Table 32 - Tests of entry route procedures- Test results

Except for the entry/exit zone, all other burglar zones are set to a follower zone according to manufactures documentation.

Step	General measurement and criteria	Measurement result	Pass/fail
1	Event log Unsetting procedure initiated Table 11 Table 12 Zone 1	OK OK OK OK OK	**P**
2	CIE Unset Table 11 Table 12	OK OK OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

	Zone 1 and 2	OK	
3	CIE set Unsetting procedure initiated	OK OK Zone 1 (entry)	**P**
4	Intruder alarm generated	OK Zone 2 (follower). Not notified	**P**
5	Not completed entry 8.2.4.4	OK Intruder alarm: Zone 1 and 2. Notified OK	**P**
6	Unsetting procedure initiated	OK	**P**
7	Tamper generated	OK (zone 41). Notified Alarm zone 1 (entry route expired) CIE restored	**P**
8	CIE set Unsetting procedure initiated	OK OK In order to fulfil the requirement, all intruder zones (instant) are set to zone type “follower” • Zone 1 entry/exit • Zone 2 follower • Zone 3 follower • Zone 4 follower • Zone 5 follower	**P**
9	Intruder alarms zone 2, 3 and 5 generated. 8.2.4.3	WD = Not activated = OK ATS not activated = OK Indication = OK With use of follower zones, no additional indicators/internal WD will be activated as the entry/exit buzzer already is running = NA. ATS or external WD not activated.	**P**
10	<30 seconds	ATS not activated = OK	**P**
11	>45 seconds 8.4.4.4	Intruder alarm zone 1,2,3,4 and 41 OK	**P**
12	CIE set Unsetting procedure initiated	OK OK In order to fulfil the requirement all intruder zones (instant) are set to zone type “follower”	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

		• Zone 1 entry/exit • Zone 2 follower • Zone 3 follower • Zone 4 Hold-up • Zone 5 follower • Zone 9 follower	
13	An intruder alarm zone 2, 3, 5 and 9. 8.2.4.3	WD = Not activated ATS not activated = OK Indication = OK With use of follower zones, no additional indicators/internal WD will be activated as the entry/exit buzzer already is running = NA	**P**
14	<30 seconds Unset	ATS not activated = OK OK	**P**

Table 33 - Tests of exit route procedures- Test results

Step	General measurement and criteria	Measurement result	Pass/fail
		• Zone 1 entry/exit • Zone 2 follower • Zone 3 follower • Zone 4 follower • Zone 5 follower	
1	Event log Table 11 Table 12 8.2.3.4 8.4.4	OK OK OK OK OK	**P**
2	• Zone 1 entry/exit • Zone 2 follower • Zone 3 follower Event log Table 11 Table 12 8.2.3.4 • 8.4.4	No alarm = OK No alarm = OK No alarm = OK OK OK OK OK OK	**P**
3	No active zones System set after 30 seconds Setting procedure completed	OK OK OK	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

	8.2.3.5 8.4.3 <180s	OK OK (extinguish mode enabled)	
4	Event log Table 11 Table 12 8.2.3.4 8.4.4	OK OK OK OK OK	**P**
5	• Zone 1 entry/exit • Zone 2 follower • Zone 3 follower Event log Table 11 Table 12 8.2.3.4 • 8.4.4	No alarm = OK No alarm = OK No alarm = OK OK OK OK OK OK	**P**
6	No active zones System set after 30 seconds Setting procedure completed 8.2.3.5 8.4.3 <180s	OK OK OK OK OK (extinguish mode enabled)	**P**
7	 Event log Table 11 Table 12 8.2.3.6	Zone 1 and 2 open after exit procedure Incomplete exit = OK Not set = OK No alarm = OK OK OK OK OK	**P**

Clause	Requirement - test	Result	Verdict
12.6.7	Event log a) Object of the test b) Principle c) Test condition		

Reference to part of this report which may lead to misinterpretation is not permissible.

Table 34 - Tests of event log- Test results

Step	General measurement and criteria	Measurement result	Pass/fail
A	Level 1 Level 2 Level 3 Level 1	No access. User cannot alter or change the event log. User cannot alter or change the event log. User cannot alter or change the event log before authorized by a level 2 person. User input disabled/tamper > 3 incorrect codes	**P**
B	Event log full Battery trouble	The oldest event is replaced by the newest event = OK	**P**
C	Non mandatory events	Log is tested according to grade 4. All events to be recorded = OK	**P**
D	All events are recorded in the event log	Log according to grade 4. All events to be recorded = OK. The event log has the capacity to log more than 500 events.	**P**
F	Event log versus total loss of power	Test started 22.04.05 Test carried out to 23.05.05 Event log before and after test compared = OK. Due to a large number of pages, the event log print outs are not attached.	**P**
G	Change of time and date	Date: 20.04.05 Clock: 14.00	**P**
H	Comparison	The event log and the permanent record are identical with regards to event, time and date	**P**
I	ARC recording	Not relevant	**NA**
L	ARC recording	Not relevant	**NA**
M	Clock accuracy	Test started: 25.04.05 Clock reference: http://www.justervesenet.no/ Reference clock: 09-27-58 Panel clock: 09-29-00 IAS clock difference: 1 minute and 2 seconds before clock reference.	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

		After 30 days: Reference clock: 12-06-50 Panel clock: 12-08-00 IAS clock difference: 1 minute and 10 seconds before clock reference. Change in total: 8 seconds < 50 seconds = OK	

<table>
<tr><th>Clause</th><th>Requirement - test</th><th>Result</th><th>Verdict</th></tr>
<tr><td>13</td><td>Environmental tests</td><td colspan="2">The EN50130-5 is used</td><td></td></tr>
<tr><td>13.1</td><td>General</td><td colspan="2">• Functional tests are carried out.
• A visual inspection is carried out prior to the testing
• EUT mounted according to manufacturer’s specification
• SD not located within CIE enclosure except for the vibration tests.
• CIE and ACE condition according to EN 50130-5</td><td></td></tr>
<tr><td>13.2</td><td>Environmental test selection</td><td colspan="2">CIE and ACE tested according to environmental class II

<table><tr><th>Test</th><th>State</th><th>Sample #</th></tr><tr><td>Cold</td><td>OP</td><td>1</td></tr><tr><td>Dry heat</td><td>OP</td><td>1</td></tr><tr><td>Vibration</td><td>OP</td><td>1</td></tr><tr><td>Damp heat. Cyclic</td><td>OP</td><td>3</td></tr><tr><td>Damp heat. Steady state</td><td>END</td><td>3</td></tr></table></td><td></td></tr>
<tr><td></td><td></td><td colspan="2">OP = Operational tests
END = Endurance tests (not powered)</td><td></td></tr>
</table>

Reference to part of this report which may lead to misinterpretation is not permissible.

8 CABINET PROTECTIVE TESTS - EN 50131-6

8.1 Impact/tamper protection

Test specification:

- EN 50131-6, 8.2.17

Referenced standards:

- EN 50102
- IEC 60068-2-75, 1997 Part 2: Tests - Test Eh: "Hammer tests"

Test particulars:

Test parameters	Units	Severity levels
IK code	IK code	07
Impact energy	J	2
Equivalent mass	kg	0.5
Material / hardness	Steel / HRE	80…85
Radius of striking surface	mm	25
Diameter of striking element	mm	35
No. of impacts / selected point	-	Max 5 on each exposed surface Max 3 strikes at the same point

The EUT was fixed to a wooden support according to the manufacturer's mounting instructions and oriented such that the surface to be impact tested faced upwards/ broadwise. The striking element was let to fall 5 times/face, evenly distributed, at all accessible part of the cabinet. The EUT was powered during the testing. Each impact series was followed by a visual inspection and the reduced functional test was performed after all impacts were applied. A SD was fitted and connected during the test.

Acceptance criteria:

The following shall be true after the impacts:

- Access to the internal components of the IAS shall not be achieved without visible damage.
- An appropriate tool shall be required to achieve normal access to the internal components.
- Following the application of the test, the IAS shall pass the reduced functional test as specified in EN 50131-6, 8.1.6.

Reference to part of this report which may lead to misinterpretation is not permissible.

Measurement result:
The test was carried out on all three enclosures, NX-003CB, NX-003 and NX-002. Damage to the enclosures was made (identical for all enclosures). See picture 28 in chapter 16. No degradation in functionality was observed.

Test result:
The EUT passed the test.

8.2 Opening of the enclosure / tamper detection

Test specification:

- EN 50131-6, 8.2.18.1

Referenced standard for equipment:

- EN 60529,:1989 "Degree of protection provided by enclosures (IP code)"

DNV Laboratory Procedure:
17.3.1, Environmental testing of electronics, April 2000

Test particulars:

Test parameters	Units	Severity levels
Protection requirement	IP code	NA
Probe diameter	mm	2.5
Probe length	mm	100
Applied force	N	Max 1

The EUT was fixed to a plane surface according to the manufacturer's mounting instructions. The surface extended the EUT by more than 120 mm in all directions. The EUT was powered and in "set-mode" during the testing. While observing the status of the outputs the probe was applied in all openings.

Acceptance criteria:
When opening the enclosure of IAS, it shall not be possible to introduce a test rod with above mentioned dimensions without generating a tamper signal or message.

Measurement result:
The probe could not enter the interior part of the NX-003CB, NX-003 and NX-002 without generating a tamper signal or message when opened by normal means. No damage or malfunctions were observed during or after the test.

Test result:
The EUT passed the test.

Reference to part of this report which may lead to misinterpretation is not permissible.

8.3 Removal from mounting surface / tamper detection

Not relevant for grade II.

8.4 Penetration of cabinet / tamper detection

Not relevant for grade II.

9 CABINET PROTECTIVE TESTS – CLC/TS 50131-3

9.1 Tamper protection (normal access)

Test specification:

- CLC/TS 50131-3, 8.6.1 and 12.4.4

Referenced standards:

- None

The main cabinet of the EUT was placed on a plane test surface according to the manufacturer's mounting instructions. The EUT was in "set-mode". The test was carried out by first trying to open the enclosure(s) with the tool(s) specified by the manufacturer and then by opening the enclosures without tools.

Acceptance criteria:

i. The use of the appropriate tool shall allow access to the internal components.
ii. Access to the internal components of the CIE and ACE without the defined tool (see 8.6.1) shall not be achieved without visible damage.

Measurement result, all enclosures:

i. A tamper alarm was initiated when the front lid was opened by normal means.
ii. Access to the internal components of the CIE and ACE without defined tool was not achieved. See picture 25, 26 and 27 in chapter 16 and section 12.4.4 of the functional test.

Test result:
The EUT passed the test.

Reference to part of this report which may lead to misinterpretation is not permissible.

9.2 Tamper protection (impact)

Test specification:

- CLC/TS 50131-3, 8.6.1 and 12.4.5

Referenced standards:

- EN 50130-5
- IEC 60068-2-75

DNV Laboratory Procedure:

- 17.3.01: Environmental testing of electronics.

Severity levels:

Test data:	**Severity level:**		**IK code**	
	Int	**Ext**	**Int**	**Ext**
Test level	0.5J	NA	04	NA
Number of impact at each point	3		3	
Number of points	5		5	

The main cabinet of the EUT was placed on a plane test surface according to the manufacturer's mounting instructions. The EUT was in "set-mode". The impacts was applied, evenly distributed, at all accessible part of the cabinet, **except for indicators and operating controls**. The EUT was powered during the testing. Each impact series was followed by a visual inspection and the *reduced functional test was performed after all impacts were applied. The enclosures are tested according to internal use, "Int".

Acceptance criteria:

i. Access to the internal components shall not be achieved without visible damage.
ii. Following the application of the test, if there is no visible damage, the devise shall be subjected to the *reduced functional test according to 12.3.

Measurement result, all enclosures:

i. Access to the internal components was not achieved.
ii. No visible damage. Reduced functional test = OK. See picture 25, 26 and 27 in chapter 16 and section 12.4.5 of the functional test.

Test result:

The EUT passed the test.

Reference to part of this report which may lead to misinterpretation is not permissible.

9.3 Tamper detection (opening by normal means)

Test specification:

- CLC/TS 50131-3, 8.1.3, 8.6.2, 8.9.3, 8.9.5, 8.10 and 12.4.6

Referenced standard for equipment:

- EN 60529,:1989 "Degree of protection provided by enclosures (IP code)"

DNV Laboratory Procedure:
17.3.1, Environmental testing of electronics, April 2000

Test particulars:

Test parameters	Units	Severity levels
Protection requirement	IP code	NA
Probe diameter	mm	2.5
Probe length	mm	100
Applied force	N	Max 1

The EUT was fixed to a plane surface according to the manufacturer's mounting instructions. The surface extended the EUT by more than 120 mm in all directions. The EUT was powered and in both set- and unset modes during the testing. While observing the status of the outputs the probe was applied in all openings.

Acceptance criteria:
When opening the enclosure of IAS, it shall not be possible to introduce a test rod with above mentioned dimensions without generating a tamper signal or message.

Measurement result:
The probe could not enter the interior of part the NX-003CB, NX-003 and NX-002 without generating a tamper signal or message when opened by normal means. No damage or malfunctions were observed during or after the test.

Test result:
The EUT passed the test.

Reference to part of this report which may lead to misinterpretation is not permissible.

9.4 Tamper detection (removal from mounting)

Test specification:

- CLC/TS 50131-3, 8.6.2.1 and 12.4.7

Not relevant for grade II.

9.5 Tamper detection (penetration of cabinet)

Test specification:

- CLC/TS 50131-3, 8.6.2.2 and 12.4.8

Not relevant for grade II.

Reference to part of this report which may lead to misinterpretation is not permissible.

10 IMMUNITY TESTING

10.1 Climatic tests

Number of panels and test order was carried out in accordance with CLC/TS 50131-3, table 35, i.e. sample #1 and sample #3, environmental grade II.

10.1.1 Cold (operational)

Test specification:

- CLC/TS 50131-3

Referenced standards:

- EN 50130-5
- IEC 60068-2-1, AM1 and AM2

Test particulars:

Test parameters	Units	Severity levels
Temperature	°C	-10
Duration	hours	16

The EUT was powered in "set-mode" and placed inside a climatic chamber. The reduced functional test was carried out within the last 30 minutes of the test and after a one-hour recovery period in normal laboratory environment.

Acceptance criteria:
The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty of the temperature: $< \pm 1.9$ °C

The uncertainty is calculated in accordance with NAMAS document NIS 80, and is given as 2 standard deviations.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.1.2 Dry heat (operational)

Test specification:

- CLC/TS 50131-3

Referenced standards:

- EN 50130-5
- IEC 60068-2-2, AM1 + AM2

Test particulars:

Test parameters	Units	Severity levels
Temperature	°C	55
Duration	hours	16

During the tests the unit was powered and in set mode. The reduced functional test was performed before the test. The reduced functional test was initiated within the last 30 minutes of the test and after a one-hour recovery period in normal laboratory environment.

Acceptance criteria:
The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty of the temperature: $< \pm 1.9$ °C

The uncertainty is calculated in accordance with NAMAS document NIS 80, and is given as 2 standard deviations.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.1.3 Damp heat, steady state (endurance)

Test specification:

- CLC/TS 50131-3

Referenced standards:

- EN 50130-5
- IEC 60068-2-3, AM1

Test particulars:

Test parameters	Units	Severity levels
Temperature	°C	40
Humidity	%RH	93
Duration endurance	days	21

The EUT was placed inside a climatic chamber. The reduced functional test was performed and the unit was left without power inside the climatic chamber for 21 days. After a one-hour recovery period in normal laboratory environment, the unit was powered and the reduced functional test was repeated.

Acceptance criteria:
The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty of the temperature: $< \pm 1.9$ °C

The uncertainty is calculated in accordance with NAMAS document NIS 80, and is given as 2 standard deviations.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.1.4 Damp heat, cyclic (operational)

Test specification:

- CLC/TS 50131-3

Referenced standards:

- EN 50130-5
- IEC 60068-2-30, AM1, Variant 1

Test particulars:

Test parameters	Units	Severity levels
Temperature	°C	25/40
Humidity	%RH	96
Cycles	12t + 12t	2

The EUT was placed inside a climatic chamber. During the tests the unit was powered and in "set-mode". The reduced functional test was performed before the test, during the last half hour of the last high temperature period and after recovery to room temperature.

Acceptance criteria:
The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty of the temperature: $< \pm 1.9$ °C

The uncertainty is calculated in accordance with NAMAS document NIS 80, and is given as 2 standard deviations.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.2 Mechanical tests

10.2.1 Vibration (operational)

Test specification:

- CLC/TS 50131-3

Referenced standards:

- EN 50130-5
- IEC 60068-2-6

Test particulars:

Test parameters	Units	Severity levels (powered)
Frequency range	Hz	10-150
Acceleration level	m/s^2	5
Number of axes		3
Sweep rate	octaves/min	1
Duration	sweep cycles/axis	1

The EUT was fastened to the vibration table through its normal points of attachment.
The reduced functional test was performed. The EUT was in "set-mode" test. After the test a reduced functional test was again performed.

Acceptance criteria:
The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty in the vibration amplitude < 5 %

The uncertainty is calculated in accordance with NAMAS document NIS 80, and is given as 2 standard deviations.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.3 EMC and electrical tests

10.3.1 Mains supply voltage variations

Test specification:

- None

Referenced standards:

- None

Test particulars:

Test no.	Test parameters	Units	Severity levels
1	Supply voltage (max.)	V (rms)	U_{nom+} *) + 10%
	Test time	minutes	15
2	Supply voltage (min.)	V (rms)	U_{nom-} - 15%
	Test time	minutes	15

*) U_{nom+} = Maximum nominal mains voltage = 240VAC

*) U_{nom-} = Minimum nominal mains voltage = 220VAC

The EUT was connected to the mains supply through a variac transformer. The supplied voltage was measured with a true-RMS multi-meter. The reduced functional test was performed. The EUT was in "set-mode" The reduced functional test was performed after the exposure. U_{NOM} = 230VAC.

The duration for the high- and low supply voltage test was decided considering the thermal time constant of the EUT.

Acceptance criteria:
The specified nominal mains voltage range must include 230V. The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
The charging current to the battery was measured during the voltage variation.
During test no. 1 the battery voltage/current was measured to: 13.9V / 23mA
During test no. 2 the battery voltage/current was measured to: 13.9V / 23mA

Mains = 230VAC. Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.3.2 Mains supply voltage dips and short interruptions

Test specification:

- None

Referenced standards:

- EN 50130-5
- EN 50130-4, AM1
- EN 61000-4-11

Test particulars:

Test no.	Test parameters	Units	Severity levels
1	Voltage reduction	%	60
	Duration of reduction	No. of 50Hz periods	0.5, 1, 5, 10
	No. of reductions at each duration	-	3
	Interval between reductions	s	=> 10
2	Voltage reduction	%	100
	Duration of reduction	No. of 50Hz periods	0.5, 1, 5,
	No. of reductions at each duration	-	3
	Interval between reductions	s	=> 10

Initially, the reduced functional test was performed. The EUT was placed on an insulating support 0.1 m above ground level and in "set-mode". The reduced functional test was performed after the exposure.

Acceptance criteria:
The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Mains = 230VAC. Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty in output voltage : < 1%
- Uncertainty in variation of output voltage (100%, 0-16A) : < 2%
- Uncertainty in variation of output voltage (70%, 0-23A) : < 3%
- Uncertainty in variation of output voltage (40%, 0-40A) : < 5%
- Uncertainty in overshoot/undershoot : < ± 2%
- Uncertainty in rise/fall time : < 1-3µs
- Uncertainty in phase accuracy : <5°
- Uncertainty in duration : <<1%

Reference to part of this report which may lead to misinterpretation is not permissible.

- Uncertainty in repetition frequency : <<1%

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

10.3.3 Electrostatic discharge (ESD)

Test specification:

- None

Referenced standard:

- EN 50131-5
- EN 50130-4, AM1
- EN 61000-4-2

Test particulars:

Test parameters	Units	Severity level
Amplitude	kV_{air}	±2, ±4 and ±8
Amplitude	$kV_{contact}$	±2, ±4 and ±6
Number of discharges	per pre-selected point	10
Repetition rate	Hz	<1

The EUT was placed with its normal mounting surface on an insulating support 0.1 m above ground plane. All cables and auxiliary equipment were also placed on the wooden plate and in the same height. The EUT was in "set-mode" and observed during the exposure. Contact pulses were applied to the screws which attached the cover and also the metallic enclosures. Four series of discharges were also applied onto a vertical coupling plane placed in four positions 10 cm from the EUT evenly spaced around it. The reduced functional test was performed both before and after the exposure.

Acceptance criteria:
Flickering of an indicator is permissible, providing that there is no residual change in the EUT status. The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty in risetime (10%/90%) in first peak of the discharge pulse: < ± 17%
- Uncertainty in first peak value of the discharge pulse: < ± 8%
- Uncertainty in the discharge pulse value at 30ns: < ± 30%

Reference to part of this report which may lead to misinterpretation is not permissible.

- Uncertainty in the discharge pulse value at 60ns: < ± 30%

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

10.3.4 Radiated susceptibility

Test specification:

- None

Referenced standards:

- EN 50131-5
- EN 50130-4, AM1
- EN 61000-4-3

Test particulars:

Test parameters	Units	Severity levels	
Frequency•	MHz	80 - 1000	
Amplitude	V/m	10	
Modulation:			
Type		AM	Pulse
Frequency	Hz	1000	1
Depth / duty cycle	%	80	50
Sweep step / duration		1 % / 3 seconds	

The EUT was placed on a wooden table 0.8 m above ground plane in the Semi-anechoic Chamber. The electromagnetic field was calibrated before the test started. All cables were placed in both vertical and horizontal plane to achieve a realistic test set-up. The reduced functional test was performed, and the EUT was in "set-mode". During the test the control panel and a LED connected to the bell output of the EUT was monitored by a video camera. The reduced functional test was performed after the test.

Acceptance criteria:
Flickering of an indicator during application of the radiation is permissible at 10 V/m and not allowed at 3 V/m. The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

• Exclusion bands for radio link : 800 MHz ±1 MHz

Reference to part of this report which may lead to misinterpretation is not permissible.

10.3.5 Conducted disturbances induced by electromagnetic fields

Test specification:

- None

Referenced standards:

- EN 50131-5
- EN 50130-4 AM1, parts of AM2.
- EN 61000-4-6

Test particulars:

Test parameters	Units	Amplitude modulated	Pulse modulated
Frequency (AC line-to-ground)	MHz	0.15 - 100	0.15 - 100
Frequency (DC & signal lines line-to-ground)	MHz	0.15 - 100	0.15 - 100
Amplitude (open circuit)	Vrms	10	10
Modulation Frequency Depth / duty cycle	 Hz %	 1000 80	 1 50
Sweep step / duration		1 % / 3 seconds	

The EUT was placed on an insulating support 0.1 m above a wooden table with copper earth reference plane on top 0.8 m above ground. All cables and auxiliary equipment were also placed on an insulating support and in the same height. The system was powered during the testing. The reduced functional test was performed both before and after the exposure.

Acceptance criteria:
Flickering of an indicator during application of the radiation is permissible at 10 V and not allowed at 3 V. The EUT shall fulfil chapter 6.3 of this report.

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

The total uncertainty for this test is as follows:

- Uncertainty in applied voltage: ±2.55 dB

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.3.6 Fast transient bursts

Test specification:

- None

Referenced standards:

- EN 50131-5
- EN 50130-4, AM1
- EN 61000-4-4

Test particulars:

Test parameters	Units	Severity levels
Amplitude (AC line-to-ground)	kV	± 0.5 & ± 1 & ± 2
Amplitude (DC & signal lines line-to-ground)	kV	± 0.25 & ± 0.5 & ± 1
Rise time / duration of pulse	ns	5 / 50
Repetition frequency	kHz	5
Burst duration	ms	15
Burst period	ms	300
Duration/polarity	min	>1

The bursts were applied between each AC and DC line and GND in turn, via a Coupling-/Decoupling network (CDN). The bursts were applied to the signal lines via a capacitive coupling clamp. The EUT was placed on an insulating support 0.1 m above the ground plane, and less than 1m from the burst generator. All cables and auxiliary equipment were also placed on an insulating support and in the same height. The system was powered during the testing. The reduced functional test was performed both before and after the exposure.

Acceptance criteria:
Flickering of an indicator during application of the surges is permissible. The EUT shall fulfil chapter 6.3 of this report

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test

The total uncertainty for this test is as follows:

- Uncertainty in rise time (10%/90%) in of the pulse: < ± 30%
- Uncertainty in half width (50%/50%) in of the pulse: < ± 30%
- Uncertainty in pulse repetition: < ± 20%
- Uncertainty in the amplitude of the pulse: < ± 10.8%

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

Reference to part of this report which may lead to misinterpretation is not permissible.

10.3.7 Slow high energy voltage surge

Test specification:

- CLC/TS 50131-3

Referenced standards:

- EN 50131-5
- EN 50130-4, AM1
- EN 61000-4-5

Test particulars:

Test parameters	Units	Severity levels
Amplitude AC lines, line-to-ground	kV	±0.5, ±1 & ±2 (10 ohm)
Amplitude AC lines, line-to-line	kV	±0.5 & ±1 (2 ohm)
Amplitude DC- and signal lines, line-to-ground	kV	±0.5 & ±1 (40 ohm)
Risetime / duration of pulse	µs	1,2 / 50
Repetition frequency	/ min	3
Phase shift / pulse (AC lines only)	deg.	0, 90, 180, 270 (5 pulses each)
No. of pulses/polarity		20 AC 5 DC

The EUT was placed on an insulating support 0.1 m above ground plane, and less than 1 m from the surge generator. All cables and auxiliary equipment were also placed on an insulating support and in the same height. Apart from the manufacturer's specified earth connection, the EUT and interconnecting cables were insulated from the ground reference. The surges were applied between each AC-DC- and signal-line and GND in turn, via Coupling-/Decoupling networks (CDN). The EUT was in "set-mode" and subjected to the surges according to the above table. The reduced functional test was performed both before and after the exposure.

Acceptance criteria:
Flickering of an indicator during application of the surges is permissible. The EUT shall fulfil chapter 6.3 of this report

Measurement result:
Chapter 6.3 was fulfilled.

Test result:
The EUT passed the test.

Reference to part of this report which may lead to misinterpretation is not permissible.

The total uncertainty for this test is as follows: • Uncertainty in OC rise time (10%/90%) in of the pulse: < ± 30% • Uncertainty in OC half width (50%/50%) in of the pulse: < ± 20% • Uncertainty in OC amplitude (voltage) < ± 10% • Uncertainty in SC rise time (10%/90%) in of the pulse: < ± 20% • Uncertainty in SC half width (50%/50%) in of the pulse: < ± 20% • Uncertainty in SC amplitude (current) < ± 10% The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

11 POWER SUPPLY TESTING – EN 50131-6

Item	Requirement(s)	Description(s)	Result
	EN 50131-6 **Alarm systems – Intrusion systems** **Part 6: Power supplies**	The power supplies for all three panels are identical and can thus be located in all three enclosures (NX-003CB, NX-003 and NX-002). See statement from manufacturer in chapter 14. Transformer: 16.5VAC, 35VA Battery: Depends on enclosure, 7.2Ah or 18Ah. Power output: 13.8 VDC, Max 13.85V, min 10.5V. Max 450mA/550mA, depending on configuration.	
EN… 4.1	Definition of power supply type: A = Mains/rechargeable battery (e.g. Led/acid) B = Mains/non-rechargeable battery (e.g. Lit) C = Battery only.	*The EUT was tested as Grade 2, type A.*	
EN… 4.2	Power supply monitoring	*The power supply status is shown with LED and texts in LCD.*	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

<table>
<tr>
<td>EN…
4.2.1</td>
<td>Monitoring requirements type A and B
Fault shall be shown within 10 sec and shall disappear 10 sec after the fault is corrected.
The conditions:
• Mains failure
• Low voltage storage device
• Storage device failure
• Low output voltage
are mandatory to monitor except the two last in grade 1 and 2.</td>
<td>Mains power fault is shown after approximately 1 second and disappears approximately 1 second after the mains power is restored.

• Low voltage SD is shown = OK
• SD failure = not required
• Power output fault = not required</td>
<td>P</td>
</tr>
<tr>
<td>EN…
4.2.2</td>
<td>Type C power supplies shall be monitored for low voltage.
Primary cells shall be according to EN 60086 except when technically different types are specified.</td>
<td>Type A power supply</td>
<td>NA</td>
</tr>
<tr>
<td>EN…
4.3</td>
<td>Standby period for PS type A and B.
Minimum periods in all operating conditions. When part of an IAS, standby periods of EN 50131-1 apply.
<table>
<tr><td>Grade 1</td><td>Grade 2</td><td>Grade 3</td><td>Grade 4</td></tr>
<tr><td>8h</td><td>15h</td><td>24h</td><td>24h</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table></td>
<td>The power supply is part of an IAS and thus standby periods of EN 50131-1 apply i.e. 12h for grade 2 systems. In order to achieve required stand-by time, values of battery capacity versus current consumption are stated in the manuals for both 7- and 18Ah batteries.</td>
<td>P</td>
</tr>
<tr>
<td>EN…
4.4</td>
<td>Recharging for PS type A.
Automatic full recharging after discharge as specified by battery supplier or as provided by the PS, shall be accomplished within:
<table>
<tr><td>Grade 1</td><td>Grade 2</td><td>Grade 3</td><td>Grade 4</td></tr>
<tr><td>72h</td><td>72h</td><td>24h</td><td>24h</td></tr>
</table>
Ref EN… 8.2.8: The charging voltage and current shall be as recommended by battery supplier and be sufficient to charge to 80% of nominal capacity within above given times.</td>
<td>Summary of test EN… 8.2.8
<table>
<tr><td>230V + 10%</td><td>230V -15%</td></tr>
<tr><td>The PS will charge a 7.2Ah or 18Ah battery to 80 % within the required 72h.</td><td>Same result as for 230 + 10%</td></tr>
</table>
Ref.: Technical manual: 7,2Ah or 18Ah battery</td>
<td>P</td>
</tr>
</table>

Reference to part of this report which may lead to misinterpretation is not permissible.

EN… 5	Design Skal oppfylle: EN 60950:1992. (LVD) EN 50081-1:1992. (EMC) EN 50130-4:1994. (EMC)	*See statement from manufacturer in chapter 14 of this test report covering LVD.* *See statement from manufacturer in chapter 14 of this test report for details on EMC - emission testing.* *See chapter 10.3 of this test report covering EMC - immunity testing.*	**P**
EN… 5.1	Overvoltage protection Grade 3 and 4 require protection against continuous voltage above maximum specified output voltage.	*Grade 2 does not require this protection*	**NA**
EN… 5.2	Short circuit & overload protection Each independent output shall be protected.	*Depending of the IAS, the PS may have multiple outputs which are protected by its own melting fuse. The outputs are not to be considered as independent.*	**NA**
EN… 5.3	Deep discharge protection Grade 3 and 4 require deep discharge protection for batteries that can be damaged if to deeply discharged.	*Not required in Grade 2*	**NA**
EN… 5.4	Ripple DC ripple shall be max 5% p-p or less if so specified by the manufacturer.	*See result of test 8.2.10*	**P**
EN… 5.5	Environmental conditions Selection of severity	*Environmental class ii (2) was selected. See 8.3.2*	**P**
EN… 5.6	Tamper security		
EN… 5.6.1	Tamper protection Where the PS is housed in one or more other equipments of an alarm system, the tamper protection requirement of the PS shall be that of the other equipment. Where PS is hosed in a separate housing, it shall be sufficiently robust to prevent undetected access to internal components without visible damage. Normal access shall require a tool. EN 50102:1995 shall be applied such:	*See chapter 8 in this test report – Cabinet protective tests – EN 50131-6*	**P**

Grade	1	2	3	4
IK code	07	07	08	08
Joule	2	2	5	5

Reference to part of this report which may lead to misinterpretation is not permissible.

EN… 5.6.2	Tamper detection Where PS is in separate housing tamper detection shall be according to the grade of the system it supplies: (M=mandatory, OP=optional)	*See chapter 8 in this test report – Cabinet protective tests – EN 50131-6*	**P**

	Grade			
	1	2	3	4
Opening by normal means	M	M	M	M
Removal	OP	OP	M	M
Penetration	OP	OP	OP	M

EN… 5.6.2. 1	Opening of the housing Opening by normal means shall not permit overcome of tamper detection by a 100 mm long steel rod with diameter:	*See chapter 8 in this test report – Cabinet protective tests – EN 50131-6*	**P**

Grade	1	2	3	4
Rod mmØ	2,5	2,5	1	1

EN… 5.6.2. 2	Removal from mounting For Grade 3 and 4 tamper shall be generated when removing 10 mm from its mounting.	*Not required in Grade 2*	**NA**
EN… 5.6.2. 3	For Grade 4 is shall not be possible to penetrate the enclosure creating a 4 mmØ hole without generating a tamper signal.	*Not required in Grade 2*	**NA**
EN… 6	**Product information** Information to be provided by the manufacturer:		

		Requirements in EN 50131-6	Information		**P**
	a	Installation Commissioning Maintenance Operating instructions	Covered	OK	
	b	Mains voltage- and frequency rating.	Covered	OK	
	c	Imax Maximum continuous current for each output.	Covered	OK	

Reference to part of this report which may lead to misinterpretation is not permissible.

	d	Output voltage and tolerance for an input voltage between 90% and 110% of the nominal value in b and current between 0 and the value indicated in c.	Covered	OK		
	e	Max output ripple voltage.	Covered	OK		
	f	Security Grade (1,2,3,4)	Covered	OK		
	g	Type of battery and maximum capacity, (V, Ah) and max charging time.	Covered	OK		
	h	Terminal identification.	Covered	OK		
	i	Characteristics of monitoring functions provided.	Covered	OK		
	j	Electrical characteristics of monitoring signals (e.g. open collector, voltage free contact).	Covered	OK		
	k	Operating temperature range.	Covered	OK		
	l	Type and value of user/installer-serviceable parts (e.g. fuses).	Covered	OK		
	m	Environmental class (if housed in separate housing).	Covered	OK		
	n	Name and mark of certification body, if certified.	-	NA		
	o	Type of power (A, B, C).	Covered	OK		
	p	Overvoltage protection trigr-voltage.	-	NA		
EN… 7	**Marking and labelling**		*See chapter 7 for labelling*			
EN… 8	Test					
EN… 8.1	Test requirements					
EN… 8.2	Functional, design and performance tests.					

Reference to part of this report which may lead to misinterpretation is not permissible.

EN… 8.2.3	Maximum load Can be done together with 8.2.8) **Performed with 253 Vac and 196 Vac.** With battery **fully discharged** and all outputs fully loaded, monitor the outputs for 1 hour. All outputs shall be within specified limits.		*AUX/ (V) (550 mA)*		**P**
		Umax 253Vac	*11.9*		
		Umin 253Vac	*10.5*		
		Umax 196Vac	*10.7*		
		Umin 196Vac	*10.5*		
		Umax spec.	*13.85*		
		Umin spec.	*10.50*		
EN… 8.2.4	Gradual load variation With battery **fully discharged**, increase the load gradually from 10% to 100% during at least 10 and maximum 100 sec. The output voltage shall lie within specified limits.		*AUX/ (V) (550 mA)*		**P**
		Umax	*12.28*		
		Umin	*12.10*		
		Umax spec.	*13.85*		
		Umin spec.	*10.50*		
		Time used	*95 sec*		
EN… 8.2.5	Switched load variation **Performed with 253 Vac og 196 Vac.** With battery **fully discharged**, the load is increased from 50% to 100% within 5 milliseconds. Continous output voltage shall remain within specified limits. Transient voltages shall not exceed ±40% of nominal voltage and duration shall not exceed 1 millisecond.		*196Vac AUX/ (V) (550 mA)*	*253V ac AUX/ (V) (550 mA)*	**P**
		Umax kont.	*11.50*	*12.0*	
		Umin kont.	*12.05*	*12.5*	
		Umax Puls	--	--	
		Tid puls (ms)	*Ingen puls-*	*Ingen puls-*	
		Umax spec.	*13.85*	*AUX/ (V)*	
		Umin spec.	*10.50*	*(550 mA)*	

Reference to part of this report which may lead to misinterpretation is not permissible.

EN… 8.2.6	Short circuit **Performed with 253 Vac and 196 Vac.** Done only on independent outputs, that can be taken outside the enclosure. With battery **fully charged**, and 10% load on all outputs, one output is short circuited at a time. The continuous output voltage of the non short circuited outputs shall remain within specified limits. Transient voltages shall not exceed ±40% of nominal voltage and duration shall not exceed 1 millisecond.	*No independent outputs*	**NA**
EN… 8.2.7	Overload **Performed with 253 Vac and 196 Vac.** Done only on independent outputs, that can be taken outside the enclosure. With battery **fully charged**, and the PS fully loaded, the load on one output in turn is increased by maximum 5% of maximal specified load pr. minute until over current	*No independent outputs*	**NA**

Reference to part of this report which may lead to misinterpretation is not permissible.

	protection triggers. The continuous and transient voltages on all outputs shall be continuously monitored. The continuous output voltage of the non short circuited outputs shall remain within specified limits. Transient voltages shall not exceed ±40% of nominal voltage and duration shall not exceed 1 millisecond. Pass/fail criteria for the shorted output apply up to the point where the protection triggers.		
EN… 8.2.8	Re-charging **Performed with 253 Vac and 196 Vac.** (Can be done at the same time as 8.2.3) With fully discharged battery and 100% load on all outputs, let the battery charge for a period according to 4.4 Charging current and voltage are continuously measured the first hour. Charging current and voltage shall be according to manufacturer's recommendations and charge the battery to 80% of nominal capacity.	*230V + 10% 253V* / *230V -15% 196V* *Tid (min)* / *Ib (A)* / *Ub (V)* / *tid (min)* / *Ib (A)* / *Ub (V)* *0* / *1.3* / *11.9* / *0* / *0.88* / *10.6* *15* / *0.27* / *10.5* / *15* / *0.96* / *10.6* *30* / *0.30* / *10.5* / *30* / *0.95* / *10.6* *45* / *0.29* / *10.5* / *45* / *0.91* / *10.7* *60* / *0.28* / *10.6* / *60* / *0.93* / *10.8* Charging voltage- and current at the end of the 72h period 13.8V, 80mA. • Weighted average charging current = 300mA • Weighted charge during 72 hours = 21Ah • Time required for 80% charge with 100% efficiency = 48h • Largest battery charged to 80% with 85% efficiency = 23Ah	**P**
8.2.9	Maintenance of SD charge **Performed with 253 Vac and 196 Vac.**	*AUX at 0mA* *Ub (V)* / *Ib (A)* *253Vac* / *13.85* / *0.023* *196Vac* / *13.85* / *0.023*	**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

	With battery **fully charged**, and 0 % and 100% load on all outputs, measure current and voltage on the battery 5 minutes after each change. The PS shall maintain a charging voltage corresponding to a charge of 80% of nominal capacity. For a led-acid battery at low charging rate, this is 13.0V. The current shall be within manufacturer's specification.		*Aux at 550mA*		
			Ub (V)	*Ib (A)*	
		253Vac	*13.85*	*0.04*	
		196Vac	*13.80*	*0.06*	
8.2.10	Ripple **Performed with 253 Vac and 207 Vac.** With discharged battery at the beginning of each of the 6 tests, and 10%, 50% og 100% load on all outputs, measure the ripple as peak-to-peak voltage. Peak-to-peak-voltage shall not be larger than specified or, if not specified, not be larger than 5% of nominal voltage. I.e. 0.6V peak-to-peak for 12V.		*AUX 50 mA (Vptp)*	*AUX 50 mA (V)*	**P**
		253Vac	*0.26*	*12.0*	
		207Vac	*0.54*	*12.0*	
			AUX 250 mA (Vptp)	*AUX 50 mA (V)*	
		253Vac	*0.3*	*12.0*	
		207Vac	*0.54*	*11.8*	
			AUX 550 mA (Vptp)	*AUX 50 mA (V)*	
		253Vac	*0.4*	*11.96*	
		207Vac	*0.54*	*11.5*	
		Ripple < 5% = OK			
8.2.11	EPS failure **PS type A and B only.** **Performed with 230 VAC.** With fully charged battery and 50% load, monitor the 230V-failure-output. Fault-signal shall be given within 10 seconds after disconnection of 230VAC. Fault-signal shall be restored within 10 seconds after reconnection of 230VAC.	Mains power fault is shown after approximately 1 second and disappears approximately 1 second after the mains power is restored.			**P**

Reference to part of this report which may lead to misinterpretation is not permissible.

8.2.12	SD failure **PS type A and B only.** **Performed with 230 VAC.** With the battery substituted by a variable voltage source and 100% load, reduce the voltage until just below the discharge end voltage. Battery-fault-signal shall be given within 10 seconds after the voltage passes the discharge end voltage.	*Not required for grade 2.*	**NA**
8.2.13	Low voltage SD **Performed with 230 VAC disconnected.** With the battery substituted by a variable voltage source and 100% load, reduce the voltage until a low-voltage signal is generated. Measure the voltage. Low voltage storage device-signal shall be given within 10 seconds after the voltage passes the discharge end voltage specified by the manufacturer.	*Low voltage SD was indicated at a level of 10.5V within 10 seconds.* *Technical specifications = 10.5V = OK*	**P**
8.2.14	Low output voltage **Performed with 230 VAC disconnected.** With the battery substituted by a variable voltage source and 100% load, reduce the voltage until a low-power output-fault signal is generated. Fault-signal shall be given within 10 seconds after the voltage passes the specified minimum power output voltage by more than 10%.	*Not required for grade 2.*	**NA**

Reference to part of this report which may lead to misinterpretation is not permissible.

8.2.15	High output voltage Measure the output voltage and verify that the power supply prevents voltages exceeding the specified maximum voltage. Test condition and procedure to be given by the manufacturer. The output voltage shall not exceed the specified maximum voltage.	*Not required for grade 2.*	**NA**
8.2.16	Deep discharge protection **Performed with 230 VAC disconnected.** With a partly charged battery and 100% load, monitor the battery voltage when the deep discharge protection is triggered. The discharge protection shall trigger before the deep discharge voltage, as specified by the manufacturer, is reached.	*Not required for grade 2.*	**NA**
8.2.17	Tamper protection	*See relevant chapter in this test report*	
8.2.18	Tamper detection	*See relevant chapter in this test report*	
8.2.19	Marking	*See relevant chapter in this test report*	
8.3	**Environmental tests**	*See relevant chapter in this test report*	

Reference to part of this report which may lead to misinterpretation is not permissible.

12 SUMMARY OF TEST RESULTS

With minor modifications (see Chapter 5.3) the EUT passed all tests except those listed below.

12.1 Functional tests

The EUT fulfilled all functional tests except the points listed below. We have only described what happened and left out the conclusion. The below numbering refers to Chapter 7.

- 11 Labelling of IAS and ACE is incomplete.

12.2 Environmental tests

No further comments

12.3 Power supplies

No further comments

Reference to part of this report which may lead to misinterpretation is not permissible.

13 TEST FACILITIES AND INSTRUMENTS

The following test facilities and instruments were used during the tests:

I #	Instrument Description	Make	Model	Serial number
211	Remote control for 200W1000M7	AR	CP3000	18621
738	EMC test generator	Thermo Keytek	EMCPro	0108204
473	SW for emission testing	Rohde & Schwarz	ES-K1	1026.6790.02
122	EM Clamp	Lüthi	EM101	9435108
740	I/O signal line coupler/decoupler	Thermo Keytek	CM-I/OCD	0107196
741	Fiber Optic to RS232 Converter	Thermo Keytek	FC-11	0104329
823	CDN AF2	DNV Ahaug/POSa	NA	NA
133	Vertical Coupling Plane	DNV	LABH-95-3	NA
239	Antenna Mast	H. Deisel	MA 240	240/354 Bj:95
942	Power meter Display unit	Rohde & Schwarz	NRVD 0857.800K02	100882
242	Controller	H. Deisel	HD 100	100/371 Bj:95
412	Climatic Chamber (5)	Vötsch	VC 7034	56600446
244	Field Strength Probe1	AR	FP2000	19064
178	Semi-anechoic Chamber	Siemens Matsushita Components	NA	NA
1020	Emission Software	Rohde & Schwarz	ES-K1F V.1.71	1118.5560.00
1021	Attenuator	JFW	50FH-006-300N	
123	Decoupling Clamp	Lüthi	FTC101	4147
904	ESD Generator	EM Test	DITO	1003-24
862	Accelerometer	Endevco	752A12	10179
971	Batteri til DITO	EM TEST	Accu 0305	NA
973	Signal Generator	Rohde & Schwarz	SML03 /B3	101019
207	Log-periodic antenna	AR	AT1080	17257
434	Impact tester	Testing Ljubljana	T2-75	01/99
976	Multimeter	Fluke	189	85990127
119	Coupling/Decoupling Network	Lüthi	CDN801-M2/M3	9450196
864	EMI Test Receiver	Rohde & Schwarz	ESIB 26	ESIB-100126
60	Spectrum Analyser	Tektronix	2755AP	B030201
629	Vibrator	Ling Dynamic System	V964LS	SP5555
630	Vibration Control System	Spectral Dynamics	Jaguar	2560-1301
109	Variable Autotransformer	Powerstat	226T	BP124201
357	Accelerometer (Instron)	KISTLER	8702B500M3	C63013
186	Universal Impact spring hammer	Friborg	Universal	1009
945	Thermal Power Sensor	Rohde & Schwarz	NRV-Z51 857.9004.02	100605
240	Turntable	H. Deisel	DS 420	None
977	Multimeter	Fluke	189	85990129
771	Antenna stand	H. Deisel GmbH	AS 620M	620/376/00
795	Capasitive coupling clamp	Thermo Keytek	CM-CCL	0104319

Reference to part of this report which may lead to misinterpretation is not permissible.

I #	Instrument Description	Make	Model	Serial number
1038	Video Camera	TDK RF Solutions	VC-04	200411
1037	Camera system interface	TDK RF Solutions	SI-300	14010
147	Power Amplifier	AR	200W1000M7	12949
263	Power Amplifier	AR	100A250	20028
143	Dual Directional Coupler	AR	DC2500M5	15994
800	Vibration Control System	Spectral Dynamics	PUMA	2400-1712
161	Vibrator	Instron	1508	NA
285	Climatic Chamber (3)	Vötsch	VC 0020	561036/1
269	Coupling/Decoupling Network	Schaffner	CDN801-6/T4	145
915	Signal Generator	Rohde & Schwarz	SML02 /B3	101061
402	SW for Climatic Chamber	Vötsch	SIMPATI	V 2.02
902	Vibration Control System	Spectral Dynamics	PUMA	2400-1823
381	Climatic Chamber (4)	Vötsch	VC 4033	562708/1
905	ESD Calibration Target	EM Test	CTR2	1003-07
292	Field Monitor	AR	FM5004	20599
3	Current Probe	Singer	91550-1	1236

Reference to part of this report which may lead to misinterpretation is not permissible.

14 MANUFACTURERS DECLARATION(S)

GE Security EMEA

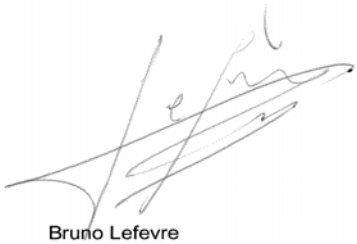
Statement for NX-8-EUR, NX-6-EUR and NX-4-EUR

The functional tests according the CLC/TS 50131-3 and the power supply tests according the EN50131-6 were performed on the NX-8-EUR.

The NX-8-EUR, NX-6-EUR and NX-4-EUR are using a flashable microcontroller, type PIC18F452.

The NX-8-EUR, NX-6-EUR and NX-4-EUR are using a similar power supply. More details can be found in the technical documentation described below :

Technical document	**Name of document**
NX-8-EUR schematic	NX8V2_EUR_V6_SCH.pdf
NX-8-EUR bill of material	NX8V2_EUR_V6_BOM.pdf
NX-6-EUR schematic	NX6V2_EUR_V6_SCH.pdf
NX-6-EUR bill of material	NX6V2_EUR_V6_BOM.pdf
NX-4-EUR schematic	NX4V2-EUR_V6_SCH.pdf
NX-4-EUR bill of material	NX4V2-EUR_V6_BOM.pdf



Bruno Lefevre
General Manager Residential
GE Security EMEA

Reference to part of this report which may lead to misinterpretation is not permissible.

NetworX

GE Security

CE DECLARATION

GE Security

MANUFACTURERS DECLARATION OF CONFORMITY

For

Product identification:

Model/type	: NX control panels	BOM rev. level	See Model Listing
Category (description)	: NX Alarm Control System		
Brand	: GE-Security - Aritech/ITI/Caddx		

Manufacturer:

GE Interlogix/Caddx 1420 N. Main, Gladewater Texas 75647 USA	GE Interlogix 2008 Orchard Avenue City West BusinessCampus Naas Road, Dublin 24

EU Representative:

GE Interlogix B.V.
Kelvinstraat 7
6003 DH Weert
The Netherlands

Concerning	RTTE		
	EMC	Safety	Telecom
A sample of the product has been tested by:	Compliance Engineering Ireland Ltd. RAYSTOWN, RATOATH ROAD, ASHBOURNE, CO. MEATH, IRELAND & GE Security Ireland Ltd. Unit 2008, Orchard Ave, City West Business Campus. Naas Road Dublin 24, Ireland	GE Security Ireland Ltd. Unit 2008, Orchard Ave, City West Business Campus. Naas Road Dublin 24, Ireland	Belcomlab
Test report reference	CE Qualification Plan: 04DRQP003		
	04DREMC001/006/007/008/009/ 010/011/012/013 & 04E1244-2	02DUB_RES575LVD-1	BCL/00-04
Applied standards	EN50130-4/A2(2003) EN55022/A2(2003) EN61000-3-2(2000) EN61000-3-3(1995)/A1(2001) EN61000-6-3(2001)	EN60950-1(2001)	CTR21(1998) +EG201121(1998)

Equipment class identifier *(RF products falling under the scope of R&TTE)*

☒ *Not Applicable* ☐ None (class 1 product) ☐ (class 2 product)

Means of conformity

"We declare under our sole responsibility that this product is in conformity with Directive 93/68/EEC (Marking) and/or complies to the essential requirements and all other relevant provisions of the 1999/5/EC (R&TTE) based on test results using (non) harmonized standards in accordance with the Directives mentioned"

Signature of representative/manufacturer:

Raoul van Bergen
Manager Control & Communications GE Security B.V.
Kelvinstraat 7
6003 DH Weert
The Netherlands

Place : Weert
Date : 7 March 2005

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NetworX GE Security

Model Listing:

Product	Product Description	BOM Revision Date
NX-216-AL	16 Zone Expander Module	Dec-03
NX-216-FR	16 Zone Expander Module	Dec-03
NX-216-UK	16 Zone Expander Module	Dec-03
NX-216E	16 Zone Expander Module	Dec-03
NX-216E-AL	16 Zone Expander Module	Dec-03
NX-216E-FR	16 Zone Expander Module	Dec-03
NX-320E	Auxiliary Power Supply	Dec-03
NX-507-AL	Seven Port Relay Module	Dec-03
NX-507-FR	Seven Port Relay Module	Dec-03
NX-507E	Seven Port Relay Module	Dec-03
NX-507E-AL	Seven Port Relay Module	Dec-03
NX-507E-FR	Seven Port Relay Module	Dec-03
NX-508-AL	Eight Port Output Module	Dec-03
NX-508-FR	Eight Port Output Module	Dec-03
NX-508-PL	Eight Port Output Module	Dec-03
NX-508E-AL	Eight Port Output Module	Dec-03
NX-508E-FR	Eight Port Output Module	Dec-03
NX-508E-PL	Eight Port Output Module	Dec-03
NX-534-AL	Two Way Listen-In Module	Dec-03
NX-534-FR	Two Way Listen-In Module	Dec-03
NX-534-WH	Two Way Listen-In Module	Dec-03
NX-534E	Two Way Listen-In Module	Dec-03
NX-534E-AL	Two Way Listen-In Module	Dec-03
NX-534E-FR	Two Way Listen-In Module	Dec-03
NX-584	Home Automation Module	Dec-03
NX-540-ES	Operator, Telephone Interface Module	Dec-03
NX-540E	Operator, Telephone Interface Module	Dec-03
NX540E-ES	Operator, Telephone Interface Module	Dec-03
NX-4	4 Zone Security Alarm Panel	Dec-03
NX-4-BE	4 Zone Security Alarm Panel	Dec-03
NX-4-BO-FG-BE	4 Zone Security Alarm Panel	Dec-03
NX-4-BO-FG-IL	4 Zone Security Alarm Panel	Dec-03
NX-4-BO-FG-NL	4 Zone Security Alarm Panel	Dec-03
NX-4-BO-FG-PL	4 Zone Security Alarm Panel	Dec-03
NX-4-BO-FG-SE	4 Zone Security Alarm Panel	Dec-03
NX-4-CZ	4 Zone Security Alarm Panel	Dec-03
NX-4-DK	4 Zone Security Alarm Panel	Dec-03
NX-4-ES	4 Zone Security Alarm Panel	Dec-03
NX-4-FR	4 Zone Security Alarm Panel	Dec-03
NX-4-GR	4 Zone Security Alarm Panel	Dec-03
NX-4-IL	4 Zone Security Alarm Panel	Dec-03
NX-4-IT	4 Zone Security Alarm Panel	Dec-03
NX-4-LX	4 Zone Security Alarm Panel	Dec-03

Signature of representative/manufacturer:

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Place : Weert
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Reference to part of this report which may lead to misinterpretation is not permissible.

NX-4-LX-IL	4 Zone Security Alarm Panel	Dec-03
NX-4-LXT-ES	4 Zone Security Alarm Panel	Dec-03
NX-4-LXT-GR	4 Zone Security Alarm Panel	Dec-03
NX-4-LXT-IL	4 Zone Security Alarm Panel	Dec-03
NX-4-LXT-TR	4 Zone Security Alarm Panel	Dec-03
NX-4-LXT-UK	4 Zone Security Alarm Panel	Dec-03
NX-4-NL	4 Zone Security Alarm Panel	Dec-03
NX-4-NO	4 Zone Security Alarm Panel	Dec-03
NX-4-PL	4 Zone Security Alarm Panel	Dec-03
NX-4-PT	4 Zone Security Alarm Panel	Dec-03
NX-4-RU	4 Zone Security Alarm Panel	Dec-03
NX-4-SE	4 Zone Security Alarm Panel	Dec-03
NX-4-TR	4 Zone Security Alarm Panel	Dec-03
NX-4-UK	4 Zone Security Alarm Panel	Dec-03
NX-4-LX-ZA	4 Zone Security Alarm Panel	Dec-03
NX-6-BE	6 Zone Security Alarm Panel	Dec-03
NX-6-BO-FG-BE	6 Zone Security Alarm Panel	Dec-03
NX-6-BO-FG-GB	6 Zone Security Alarm Panel	Dec-03
NX-6-BO-FG-IT	6 Zone Security Alarm Panel	Dec-03
NX-6-BO-FG-NL	6 Zone Security Alarm Panel	Dec-03
NX-6-BO-FG-PL	6 Zone Security Alarm Panel	Dec-03
NX-6-BO-FG-RU	6 Zone Security Alarm Panel	Dec-03
NX-6-BO-FG-UK	6 Zone Security Alarm Panel	Dec-03
NX-6-CZ	6 Zone Security Alarm Panel	Dec-03
NX-6-DK	6 Zone Security Alarm Panel	Dec-03
NX-6-ES	6 Zone Security Alarm Panel	Dec-03
NX-6-FR	6 Zone Security Alarm Panel	Dec-03
NX-6-GR	6 Zone Security Alarm Panel	Dec-03
NX-6-IL	6 Zone Security Alarm Panel	Dec-03
NX-6-IT	6 Zone Security Alarm Panel	Dec-03
NX-6-LX	6 Zone Security Alarm Panel	Dec-03
NX-6-LX-CZ	6 Zone Security Alarm Panel	Dec-03
NX-6-LXT-ES	6 Zone Security Alarm Panel	Dec-03
NX-6-LXT-GB	6 Zone Security Alarm Panel	Dec-03
NX-6-LXT-GR	6 Zone Security Alarm Panel	Dec-03
NX-6-LXT-IL	6 Zone Security Alarm Panel	Dec-03
NX-6-LXT-TR	6 Zone Security Alarm Panel	Dec-03
NX-6-LXT-UK	6 Zone Security Alarm Panel	Dec-03
NX-6-NL	6 Zone Security Alarm Panel	Dec-03
NX-6-NO	6 Zone Security Alarm Panel	Dec-03
NX-6-PL	6 Zone Security Alarm Panel	Dec-03
NX-6-PT	6 Zone Security Alarm Panel	Dec-03
NX-6-RU	6 Zone Security Alarm Panel	Dec-03
NX-6-SE	6 Zone Security Alarm Panel	Dec-03
NX-6-TR	6 Zone Security Alarm Panel	Dec-03
NX-6-UK	6 Zone Security Alarm Panel	Dec-03

Signature of representative/manufacturer:

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The Netherlands

Place : Weert
Date : 7 March 2005

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Reference to part of this report which may lead to misinterpretation is not permissible.

NetworX GE Security

NX-6-MAG	6 Zone Security Alarm Panel	Dec-03
NX-6-LX-ZA	6 Zone Security Alarm Panel	Dec-03
NX-8-BE	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-FG-BE	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-FG-GR	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-FG-IT	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-FG-NL	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-FG-PL	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-FG-RU	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-FG-SE	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-LR-FG	8 Zone Security Alarm Panel	Dec-03
NX-8-BO-LR-FG-RU	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-BE	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-CZ	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-DK	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-ES	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-FR	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-GR	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-IL	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-IT	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-LX	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-LX-IT	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-LXR	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-LXTR	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-NL	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-NO	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-OT-DK	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-PL	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-PT	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-RU	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-SE	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-TR	8 Zone Security Alarm Panel	Dec-03
NX-8-CZ	8 Zone Security Alarm Panel	Dec-03
NX-8-DK	8 Zone Security Alarm Panel	Dec-03
NX-8E	8 Zone Security Alarm Panel	Dec-03
NX-8E-BE	8 Zone Security Alarm Panel	Dec-03
NX-8E-BO-FG-BE	8 Zone Security Alarm Panel	Dec-03
NX-8E-BO-FG-IL	8 Zone Security Alarm Panel	Dec-03
NX-8E-BO-FG-NL	8 Zone Security Alarm Panel	Dec-03
NX-8E-BO-FG-PL	8 Zone Security Alarm Panel	Dec-03
NX-8E-BO-FG-SE	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-BE	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-CZ	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-DK	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-ES	8 Zone Security Alarm Panel	Dec-03

Signature of representative/manufacturer:

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The Netherlands

Place : Weert
Date : 7 March 2005

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Reference to part of this report which may lead to misinterpretation is not permissible.

NetworX GE Security

NX-8E-CB-FR	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-GR	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-IL	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-IT	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-LX	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-LXT	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-NL	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-NO	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-PL	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-PT	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-RU	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-SE	8 Zone Security Alarm Panel	Dec-03
NX-8E-CB-TR	8 Zone Security Alarm Panel	Dec-03
NX-8E-CZ	8 Zone Security Alarm Panel	Dec-03
NX-8E-DK	8 Zone Security Alarm Panel	Dec-03
NX-8E-ES	8 Zone Security Alarm Panel	Dec-03
NX-8E-FR	8 Zone Security Alarm Panel	Dec-03
NX-8E-GR	8 Zone Security Alarm Panel	Dec-03
NX-8E-IL	8 Zone Security Alarm Panel	Dec-03
NX-8E-IT	8 Zone Security Alarm Panel	Dec-03
NX-8E-LX	8 Zone Security Alarm Panel	Dec-03
NX-8E-LX-IL	8 Zone Security Alarm Panel	Dec-03
NX-8E-LXT	8 Zone Security Alarm Panel	Dec-03
NX-8E-LXT-ES	8 Zone Security Alarm Panel	Dec-03
NX-8E-LXT-SE	8 Zone Security Alarm Panel	Dec-03
NX-8E-NL	8 Zone Security Alarm Panel	Dec-03
NX-8E-NO	8 Zone Security Alarm Panel	Dec-03
NX-8E-PL	8 Zone Security Alarm Panel	Dec-03
NX-8E-PT	8 Zone Security Alarm Panel	Dec-03
NX-8E-RU	8 Zone Security Alarm Panel	Dec-03
NX-8-ES	8 Zone Security Alarm Panel	Dec-03
NX-8E-SE	8 Zone Security Alarm Panel	Dec-03
NX-8E-TR	8 Zone Security Alarm Panel	Dec-03
NX-8-FR	8 Zone Security Alarm Panel	Dec-03
NX-8-GR	8 Zone Security Alarm Panel	Dec-03
NX-8-IL	8 Zone Security Alarm Panel	Dec-03
NX-8-IT	8 Zone Security Alarm Panel	Dec-03
NX-8-LR-ES	8 Zone Security Alarm Panel	Dec-03
NX-8-LX	8 Zone Security Alarm Panel	Dec-03
NX-8-LX-CZ	8 Zone Security Alarm Panel	Dec-03
NX-8-LX-IL	8 Zone Security Alarm Panel	Dec-03
NX-8-LX-IT	8 Zone Security Alarm Panel	Dec-03
NX-8-LXR	8 Zone Security Alarm Panel	Dec-03
NX-8-LXTR-ES	8 Zone Security Alarm Panel	Dec-03
NX-8-LXTR-GR	8 Zone Security Alarm Panel	Dec-03
NX-8-LXTR-IL	8 Zone Security Alarm Panel	Dec-03

Signature of representative/manufacturer:

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The Netherlands

Place : Weert
Date : 7 March 2005

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Reference to part of this report which may lead to misinterpretation is not permissible.

NetworX GE Security

NX-8-LXTR-TR	8 Zone Security Alarm Panel	Dec-03
NX-8-LXTR-UK	8 Zone Security Alarm Panel	Dec-03
NX-8-LXT-UK	8 Zone Security Alarm Panel	Dec-03
NX-8-NL	8 Zone Security Alarm Panel	Dec-03
NX-8-NO	8 Zone Security Alarm Panel	Dec-03
NX-8-OT-DK	8 Zone Security Alarm Panel	Dec-03
NX-8-PL	8 Zone Security Alarm Panel	Dec-03
NX-8-PT	8 Zone Security Alarm Panel	Dec-03
NX-8-RU	8 Zone Security Alarm Panel	Dec-03
NX-8-SE	8 Zone Security Alarm Panel	Dec-03
NX-8-TR	8 Zone Security Alarm Panel	Dec-03
NX-8-UK	8 Zone Security Alarm Panel	Dec-03
NX-8-CB-LXR-GR	8 Zone Security Alarm Panel	Dec-03
NX-8-LX-ZA	8 Zone Security Alarm Panel	Dec-03
NX-8E-LX-ZA	8 Zone Security Alarm Panel	Dec-03
TD300-E101D	35VA Altair Transformer	Dec-03
NX-4-BO-FG-ES	Nx-4 Eur, Pc Board Only Finished Good	Jan-05
NX-4-BO-FG-EUR	NX-4 EUR, BOARD ONLY FINISHED GOOD	Jan-05
NX-4-BO-FG-RU	Nx-4 Reg, Pc Board Only Finished Good	Jan-05
NX-4-ES-PRO	Nx-4 Panel, W/Cam Lock, In Nx-003 Housing	Jan-05
NX-4-EUR-ACPO	4 TO 8 ZONE PANEL, IN ENCLOSURE, WITHOUT CAM LOCK WITH TRANSFORM	Jan-05
NX-4-EUR-NFA2P	4 TO 8 ZONE PANEL, IN ENCLOSURE, WITHOUT CAM LOCK WITH TRANSFORM	Jan-05
NX-4-EUR-PRO	4 TO 8 ZONE PANEL, IN ENCLOSURE, WITHOUT CAM LOCK WITH TRANSFORM	Jan-05
NX-4-LX-EUR	4 TO 8 ZONE PANEL, IN ENCLOSURE, WITHOUT CAM LOCK AND TRANSFORME	Jan-05
NX-4-LXT-EUR-ACPO	4 TO 8 ZONE PANEL, IN ENCLOSURE, WITHOUT CAM LOCK, TRANSFORMER A	Jan-05
NX-4-LXT-IT	Nx-4 Eur, Panel In Can W/O Camlock,Xfmr,Tamper	Jan-05
NX-6-BO-FG-ES	Nx-6 Eur, Pc Board Only Finished Good	Jan-05
NX-6-BO-FG-EUR	NX-6 EUR, BOARD ONLY FINISHED GOOD	Jan-05
NX-6-BO-FG-EUR-ACPO	NX-6 PC BOARD ONLY, FINISHED GOODS	Jan-05
NX-6-BO-FG-GR	Nx-6 Eur, Greece Board Only Finished Good	Jan-05
NX-6-BO-FG-IL	Nx-6 Reg, Pc Board Only Finshed Good	Jan-05
NX-6-EUR-ACPO	6 TO 16 ZONE PANEL, IN ENCLOSURE, WITH CAM LOCK, TRANSFORMER AND	Jan-05
NX-6-EUR-NFA2P	6 TO 16 ZONE PANEL, IN ENCLOSURE, WITH CAM LOCK, TRANSFORMER AND	Jan-05
NX-6-LX-EUR	6 TO 16 ZONE PANEL, IN ENCLOSURE, WITH CAM LOCK AND TAMPER, WITH	Jan-05
NX-6-LX-EUR-ACPO	6 TO 16 ZONE PANEL, IN ENCLOSURE, WITH CAM LOCK AND TAMPER, WITH	Jan-05
NX-6-LXT-IT	Nx-6 Reg, Panel In Can W/O Xfmr,Camlock,Tamper	Jan-05
NX-6-LXT-RU	Nx-6 Eur, Panel, In Enclosure, W/Out Transformer & Tamper, W/Cam	Jan-05
NX-6-LX-UK	Nx-6-Eur, 6 To 16 Zone Panel, In Housing	Jan-05
NX-8-BO-FG-EUR-NFA2P	NX-8 PC BOARD ONLY, FINISHED GOODS	Jan-05

Signature of representative/manufacturer:

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The Netherlands

Place : Weert
Date : 7 March 2005

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Reference to part of this report which may lead to misinterpretation is not permissible.

NX-8-BO-LR-FG-ES	Nx-8 Eurx, Pc Board Only Finished Good W/O Relays	Jan-05
NX-8-BO-LR-FG-EUR	NX-8 PC BOARD ONLY, WITHOUT RELAY OUTPUTS, FINISHED GOODS	Jan-05
NX-8-BO-LR-FG-GR	Nx-8 Eurx, Pc Board Only Finished Good W/O Relays	Jan-05
NX-8-BO-LR-FG-IL	Nx-8 Reg, Pc Board Only Without Relays Finished Good	Jan-05
NX-8-CB-EUR	8 TO 48 ZONE PANEL WITH RELAY OUTPUTS, IN COMMERCIAL ENCLOSURE,	Jan-05
NX-8-CB-EUR-NFA2P	8 TO 48 ZONE PANEL WITH RELAY OUTPUTS, IN COMMERCIAL ENCLOSURE,	Jan-05
NX-8-CB-LXR-EUR	8 TO 48 ZONE PANEL WITHOUT RELAY OUTPUTS, IN COMMERCIAL ENCLOSUR	Jan-05
NX-8-CB-LXTR-EUR	8 TO 48 ZONE PANEL WITHOUT RELAY OUTPUTS, IN COMMERCIAL ENCLOSUR	Jan-05
NX-8E-BO-FG-GR	Nx-8e Eur, Pc Board Only	Jan-05
NX-8E-BO-FG-RU	Nx-8e Eur, Pc Board Only Finished Good	Jan-05
NX-8E-CB-LX-IT	Nx-8e Eur, Panel W/Relays,Tamper W/O Xfmr	Jan-05
NX-8E-CB-LXT-GR	Nx-8e Eur, Panel, In Can W/Camlock,W/O Xfmr,Tamper	Jan-05
NX-8E-LX-IT	Nx-8e Eur, Panel, In Enclosure, Without Transformer, With Tamper	Jan-05
NX-8E-LXT-GR	Nx-8e Eur, Greece Less Xfmr/Tamper	Jan-05
NX-8-EUR	8 TO 48 ZONE PANEL WITH RELAY OUTPUTS, IN ENCLOSURE, WITH TAMPER	Jan-05
NX-8-EUR-ACPO	8 TO 48 ZONE PANEL WITH RELAY OUTPUTS, IN ENCLOSURE, WITH TAMPER	Jan-05
NX-8-EUR-NFA2P	8 TO 48 ZONE PANEL WITH RELAY OUTPUTS, IN ENCLOSURE, WITH TAMPER	Jan-05
NX-8-LR-EUR	8 TO 48 ZONE PANEL WITHOUT RELAY OUTPUTS, IN ENCLOSURE, WITH CAM	Jan-05
NX-8-LXR-EUR	8 TO 48 ZONE PANEL WITHOUT RELAY OUTPUTS, IN ENCLOSURE, WITH TAM	Jan-05
NX-8-LXT-EUR	8 TO 48 ZONE PANEL WITH RELAY OUTPUTS, IN ENCLOSURE, WITH CAM LO	Jan-05
NX-8-LXT-EUR-ACPO	8 TO 48 ZONE PANEL WITH RELAY OUTPUTS, IN ENCLOSURE, WITH CAM LO	Jan-05
NX-8-LXTR-EUR	8 TO 48 ZONE PANEL WITHOUT RELAY OUTPUTS, IN ENCLOSURE, WITH CAM	Jan-05
NX-8-LXTR-EUR-ACPO	8 TO 48 ZONE PANEL WITHOUT RELAY OUTPUTS, IN ENCLOSURE, WITH CAM	Jan-05
NX-8-LXTR-RU	Nx-8 Eurx, Panel W/O Relays Outputs,In Enclosure,W/O Xfmr,Tamper	Jan-05
NX-508E	Nx-508e,Output,Expander	Jan-05
NX-540E-IT	Telephone Interface-Italian	Jan-05
NX-216Z8	8 Zone Expander For Nx Panels	Jan-05
NX-320-I	Nx-320 Power Supply Intl W/O Xfmr	Jan-05
NX-4-BO-FG-GR	Nx-4 Eur, Pc Board Only Finished Good	Jan-05
NX-4-BO-FG-TR	Nx-4 Eur, Pc Board Only Finished Good	Jan-05
NX-4-EUR	4 To 8 Zone Panel, In Enclosure, Without Cam Lock With Transform	Jan-05
NX-4-LXT-EUR	4 To 8 Zone Panel, In Enclosure, Without Cam Lock, Transformer A	Jan-05
NX-6-BE-IRLPACK	NX-6-BE IRLPACK	Jan-05

Signature of representative/manufacturer:

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Place : Weert
Date : 7 March 2005

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Reference to part of this report which may lead to misinterpretation is not permissible.

NX-6-BO-FG-CZ	Nx-6 Eur, Pc Board Only Finished Good	Jan-05
NX-6-BO-FG-SE	Nx-6 Eur, Pc Board Only, Finished Good, Swedish Software	Jan-05
NX-6-BO-FG-TR	Nx-6 Eur, Pc Board Only, Finished Good	Jan-05
NX-6-EUR	6 To 16 Zone Panel, In Enclosure, With Cam Lock, Transformer And	Jan-05
NX-6-LXT-EUR	6 To 16 Zone Panel, In Enclosure, With Cam Lock, Without Transfo	Jan-05
NX-6-LXT-EUR-ACPO	6 TO 16 ZONE PANEL, IN ENCLOSURE, WITH CAM LOCK, WITHOUT TRANSFO	Jan-05
NX-8-BE-IRLPACK	NX-8-BE IRLPACK	Jan-05
NX-8-BO-FG-CZ	Nx-8 Eur, Pc Board Only W/ Relays	Jan-05
NX-8-BO-FG-EUR	Nx-8 Pc Board Only, Finished Goods	Jan-05
NX-8-BO-FG-FR	Nx-8 Rrh, Board Only Finish Good	Jan-05
NX-8-CB-LX-EUR	8 To 48 Zone Panel With Relay Outputs, In Commercial Enclosure,	Jan-05
NX-8E-BO-FG-CZ	Nx-8e Eur, Panel	Jan-05
NX-8E-LX-CZ	Nx-8e Eur, Panel In Enclosure With Tamper And Cam Lock	Jan-05
NX-8E-LXT-UK	Nx-8e Eur, Panel W/Relays,Cam Lock, W/O Xfmr,Tamper	Jan-05
NX-8-LX-EUR	8 To 48 Zone Panel With Relay Outputs, In Enclosure, With Tamper	Jan-05
NX-8-LXT-IT	Nx-8 Eur, Panel Less Transformer	Jan-05

Signature of representative/manufacturer:

Raoul van Bergen
Manager Control & Communications GE Security B.V.
Kelvinstraat 7
6003 DH Weert
The Netherlands

Place : Weert
Date : 7 March 2005

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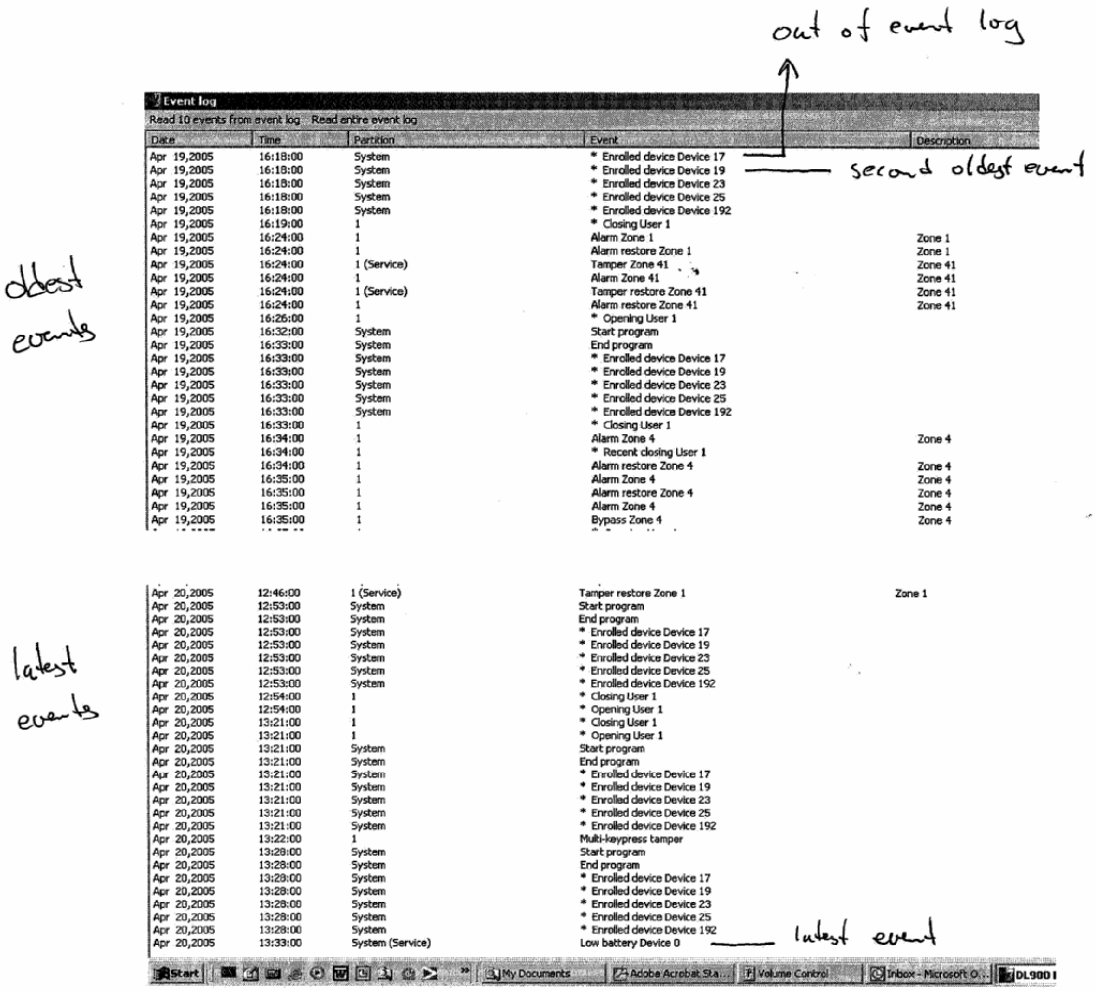
Reference to part of this report which may lead to misinterpretation is not permissible.

15 PRINT OUT SAMPLE OF THE EVENT LOG

Reference to part of this report which may lead to misinterpretation is not permissible.



a-d

Table 34

Fifo -testing

step 1/2

DNV
Horik 20/4-05
Arve Hang

GE SECURITY
Henk Debode

Reference to part of this report which may lead to misinterpretation is not permissible.

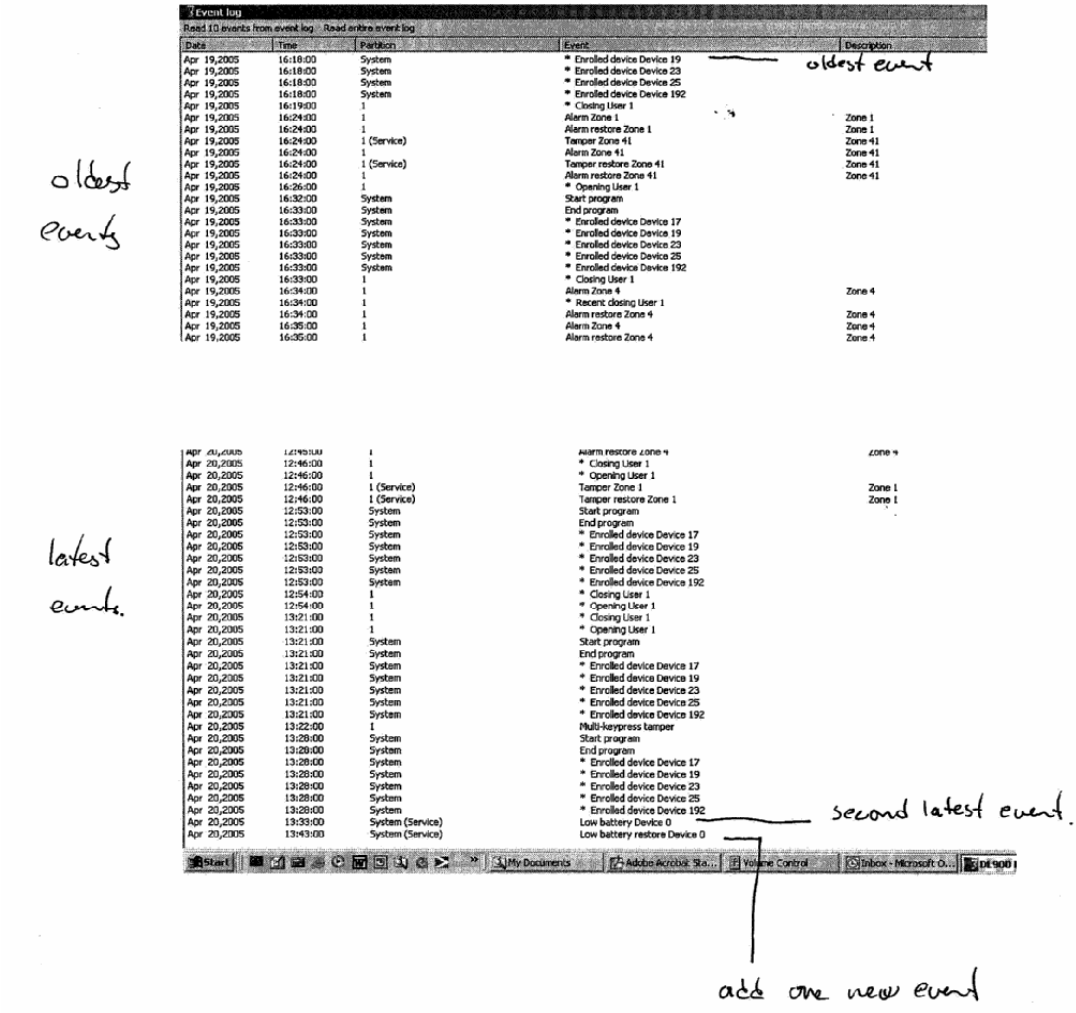


Table 34

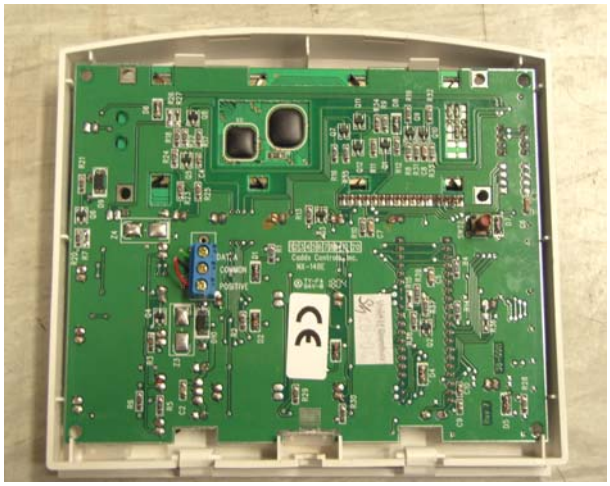
step 2/2

Fifo testing

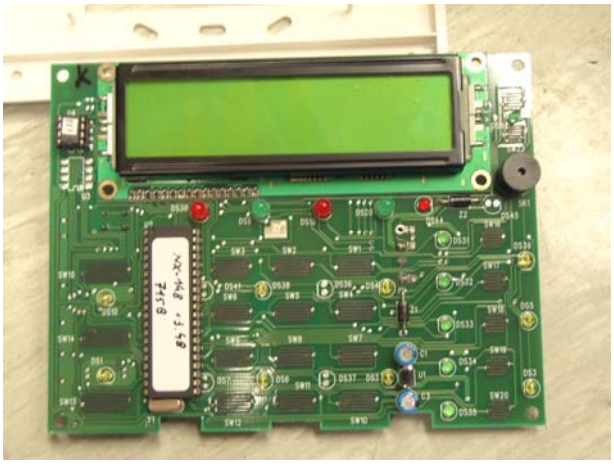
Reference to part of this report which may lead to misinterpretation is not permissible.

16 PICTURES

Picture 1: LCD keypad, NX-148E

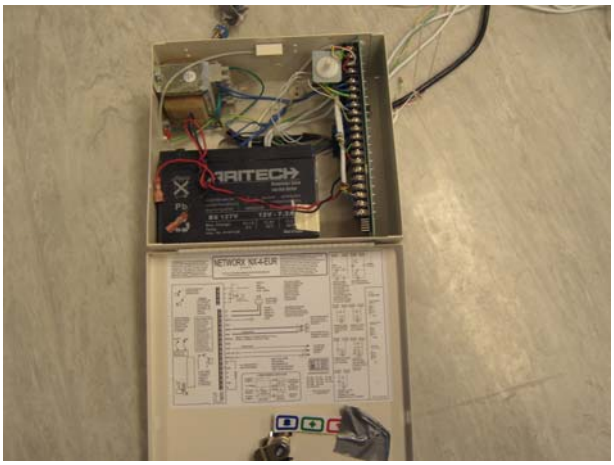


Picture 2: PCB details, NX-148E

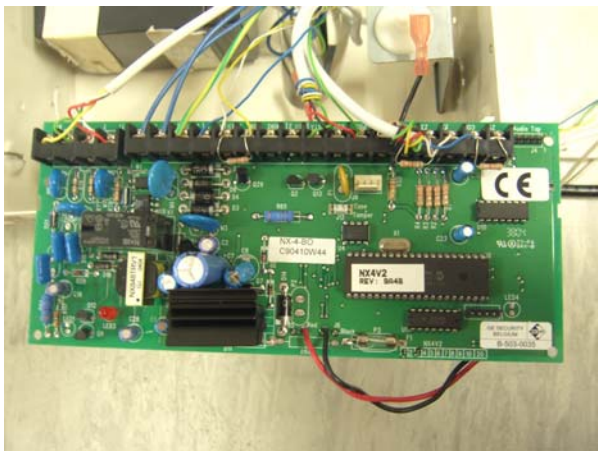


Picture 3: PCB details, NX-148E

Picture 4: NX-4-EUR/NX-002

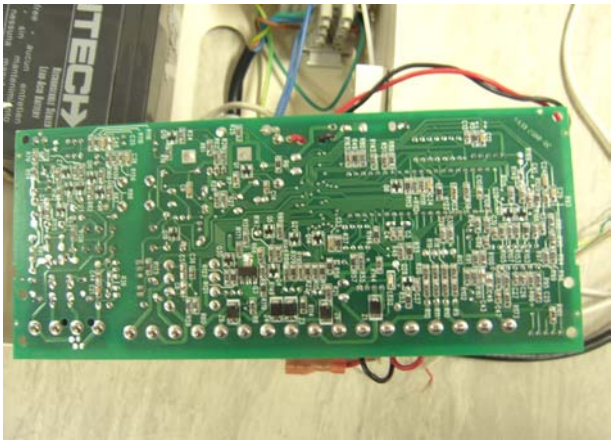


Picture 5: Overview, NX-4-EUR system

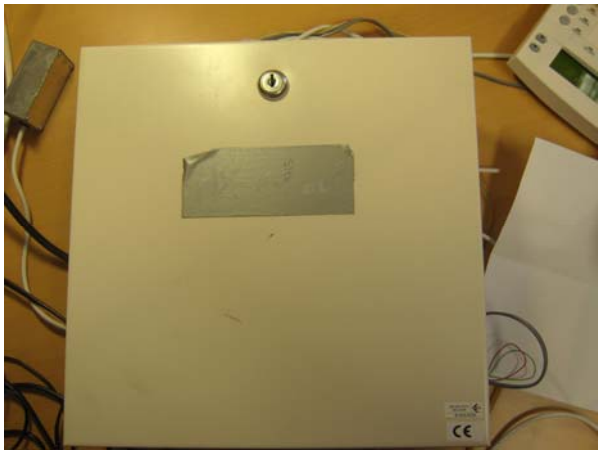


Picture 6: PCB details, NX-4-EUR

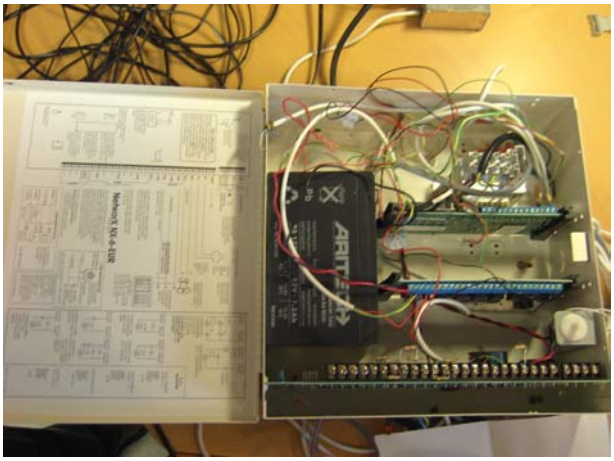
Reference to part of this report which may lead to misinterpretation is not permissible.



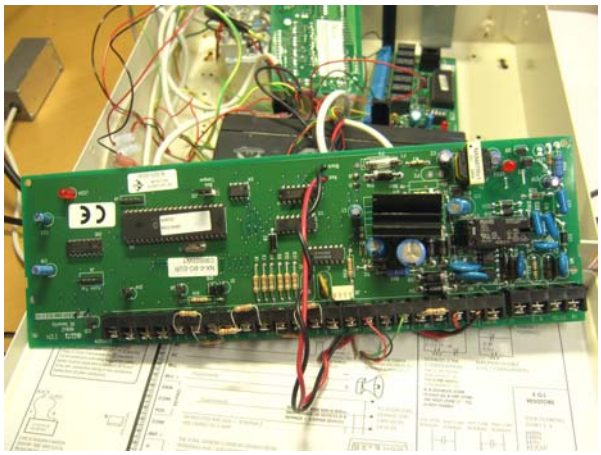
Picture 7: PCB details, NX-4-EUR



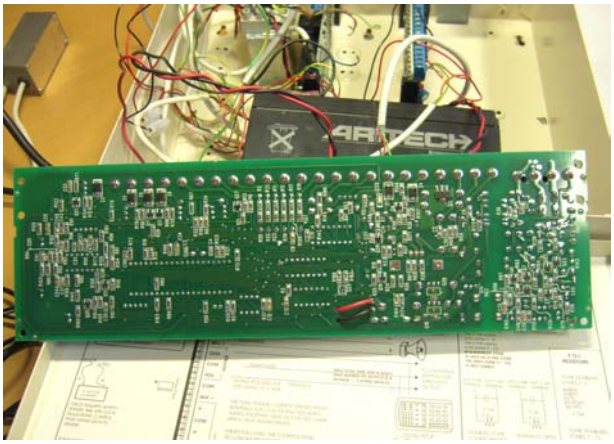
Picture 8: NX-6-EUR/NX-003



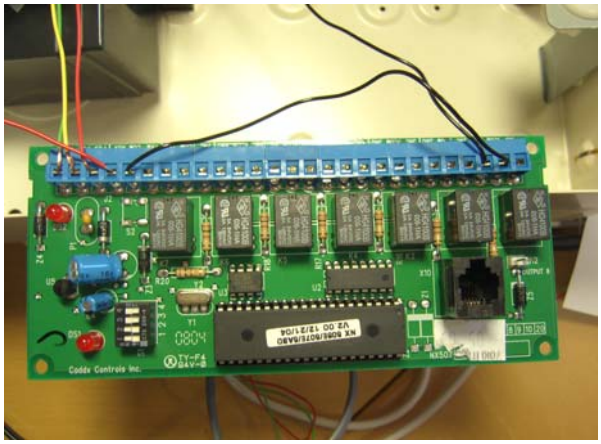
Picture 9: Overview, NX-6-EUR system



Picture 10: PCB details, NX-6-EUR

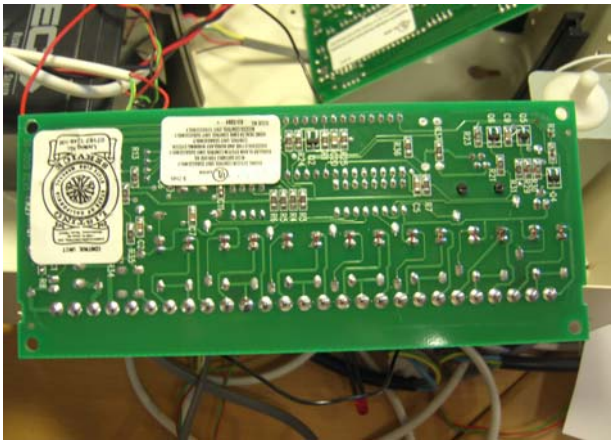


Picture 11: PCB details, NX-6-EUR

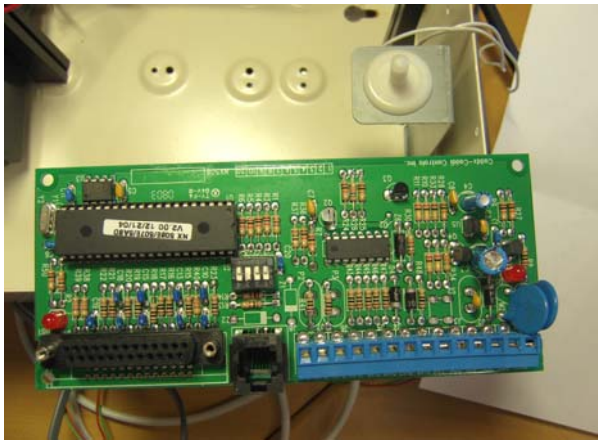


Picture 12: PCB details, NX-507E

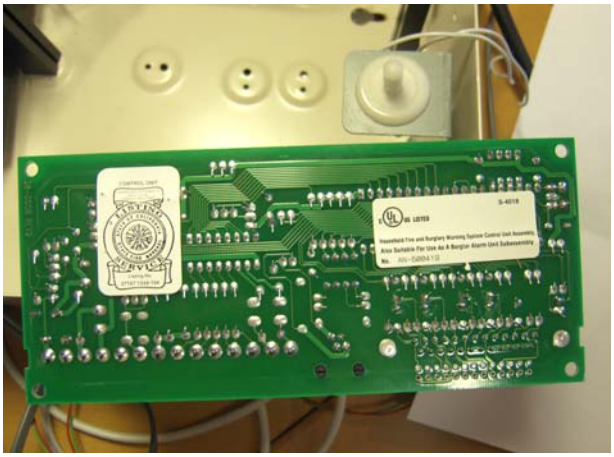
Reference to part of this report which may lead to misinterpretation is not permissible.



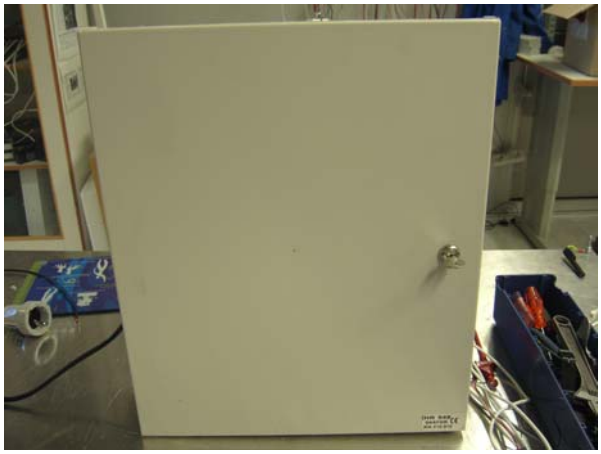
Picture 13: PCB details, NX-507E



Picture 14: PCB details, NX-508E

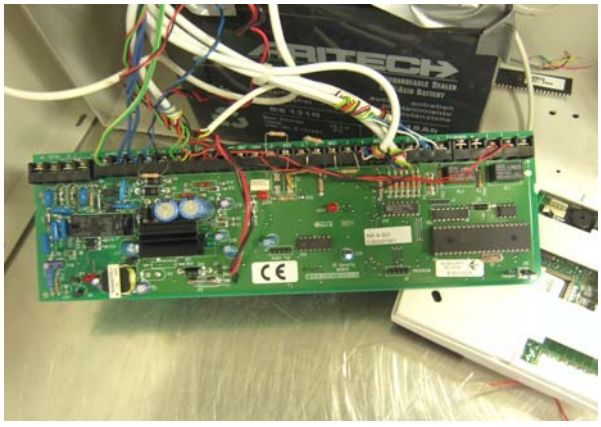


Picture 15: PCB details, NX-508E



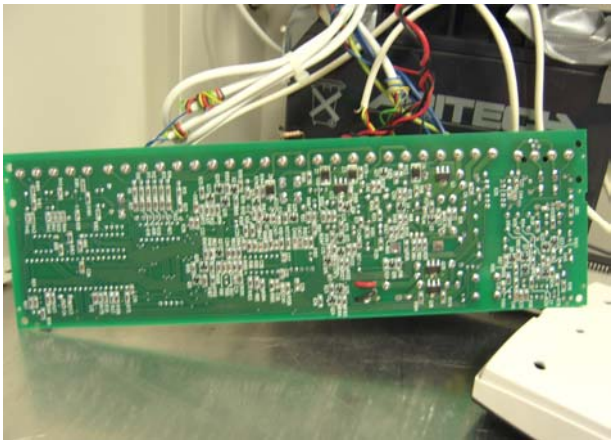
Picture 16: NX-8-EUR/NX-003CB

Picture 17: Overview, NX-8-EUR system

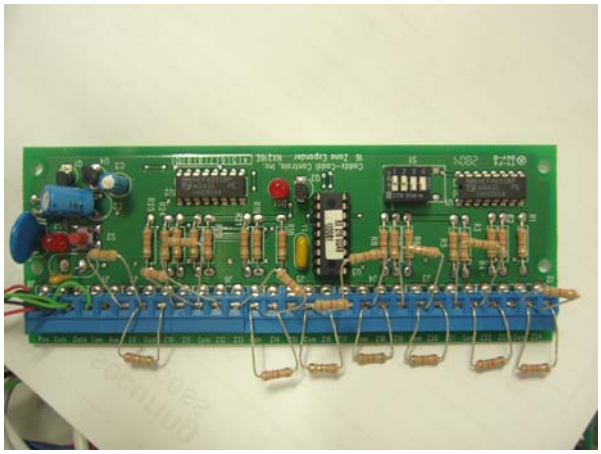


Picture 18: PCB details, NX-8-EUR

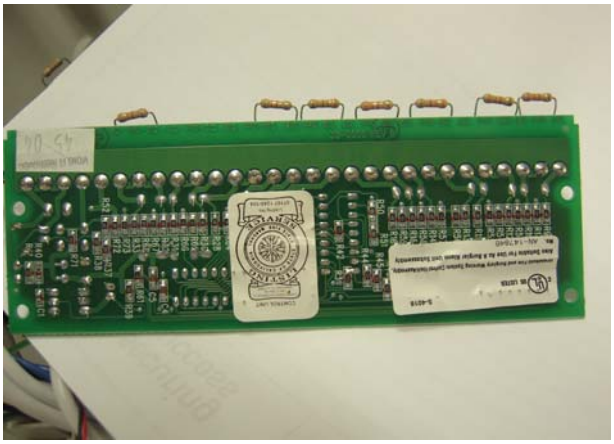
Reference to part of this report which may lead to misinterpretation is not permissible.



Picture 19: PCB details, NX-8-EUR



Picture 20: PCB details, NX-216E



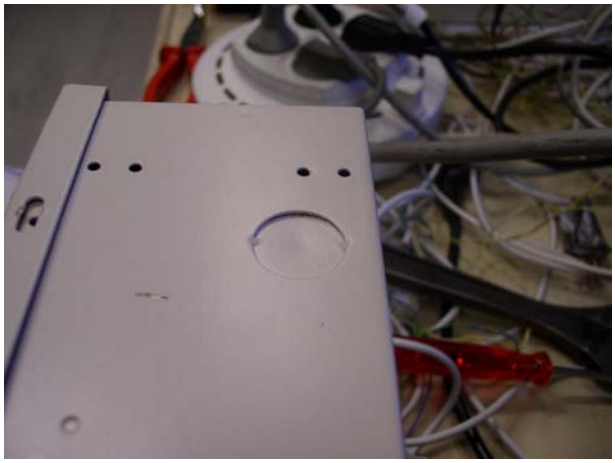
Picture 21: PCB details, NX-216E

Picture 22: Draft labelling

Picture 23: Before test of labelling

Picture 24: After test of labelling

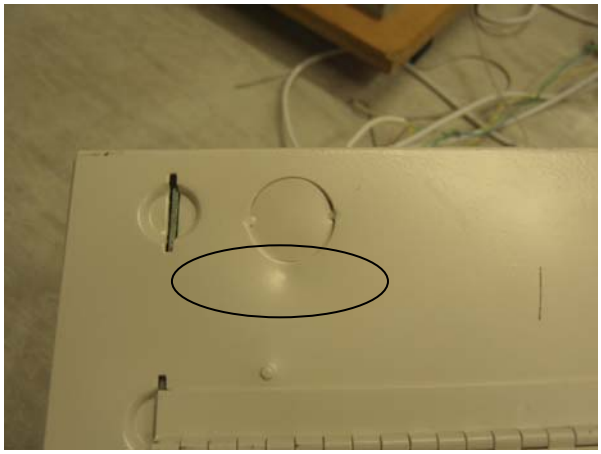
Reference to part of this report which may lead to misinterpretation is not permissible.



Picture 25: result of impact test – NX-002

Picture 26: result of impact test – NX-003

Picture 27: result of impact test – NX-003CB, no damage



Picture 28: result of impact test – all enclosures. Dent in enclosures

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Reference to part of this report which may lead to misinterpretation is not permissible.